



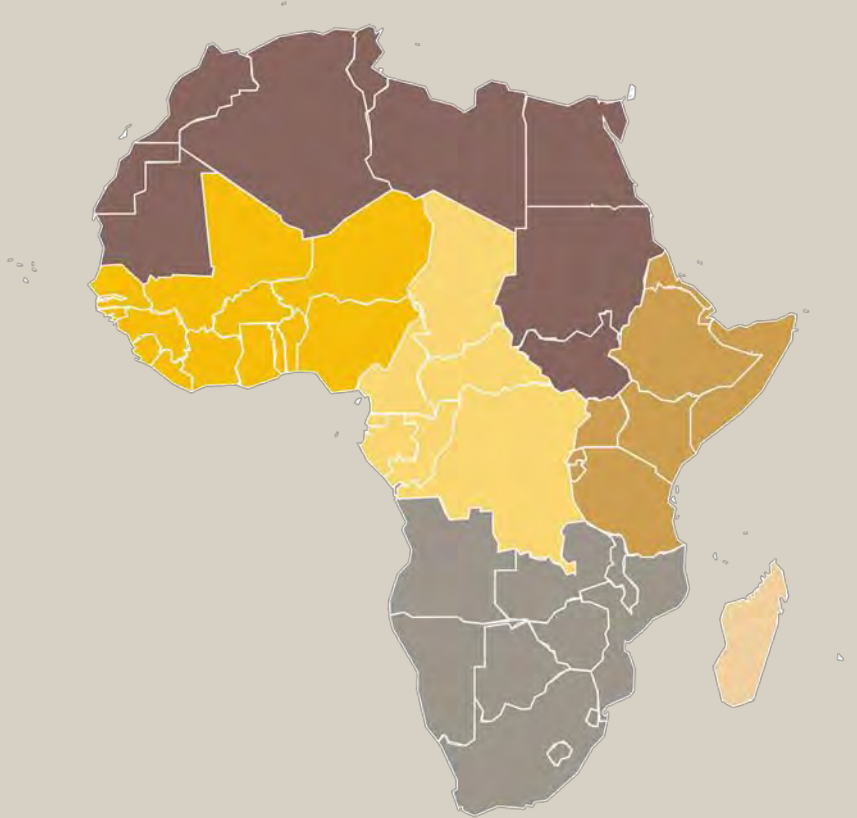
AFRINIC Report
ARIN 47
Online

Madhvi GOKOOL
Senior IP Resources Specialist, AFRINIC

26 March 2021



Service Region



**5th
RIR**

created in 2005;
HQ in Mauritius

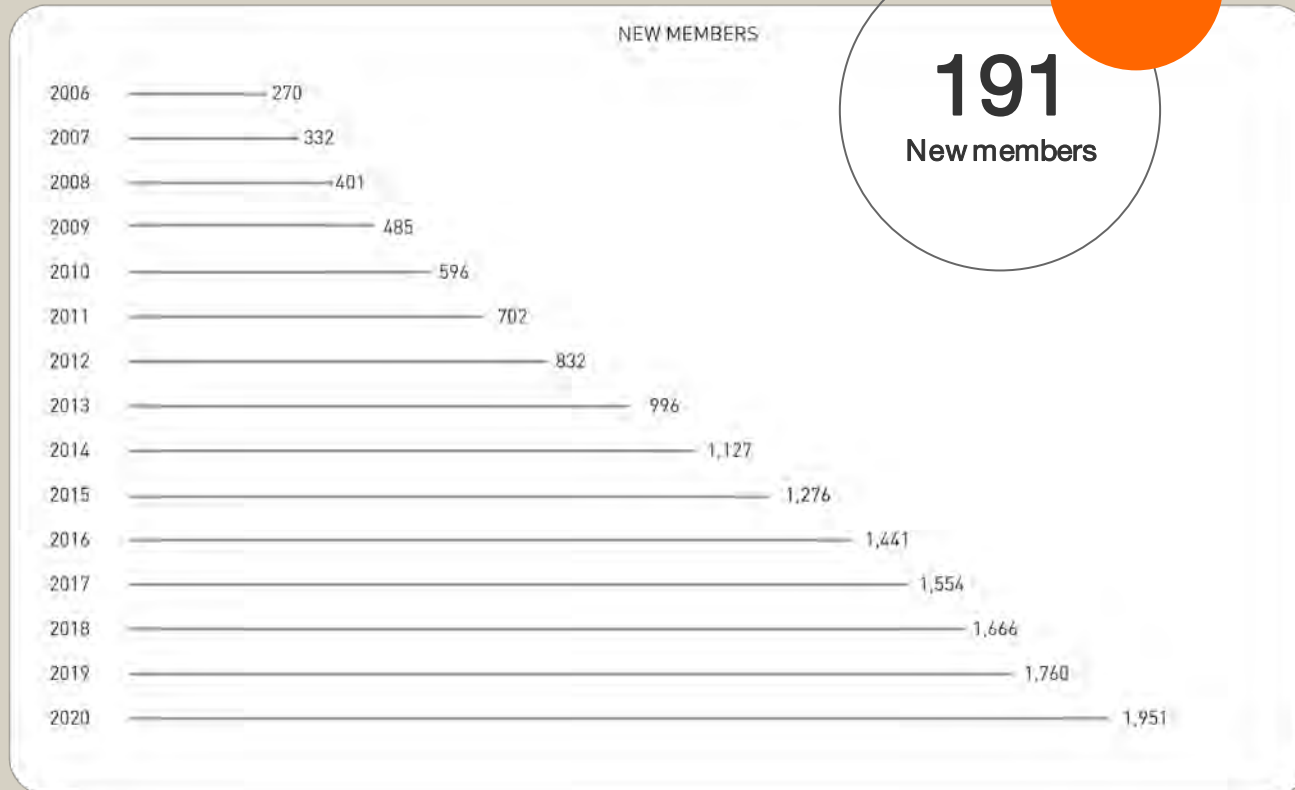
Serving
55
economies

In Africa and Indian
Ocean

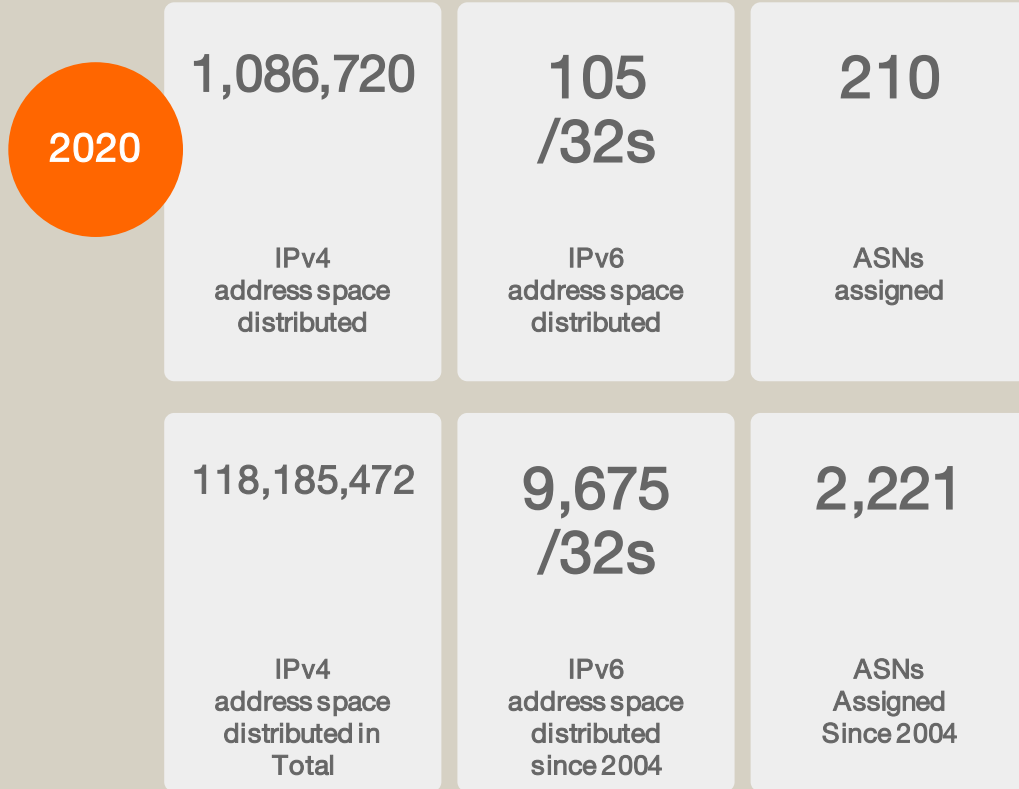
54

Dedicated
staff

Membership Growth



IP and ASN Distribution



IPv4 Addresses Exhaustion



The graphic features a stylized rocket ship with the word 'SOFT' integrated into its body. Above the rocket is the text 'IPv4' and below it is 'LANDING'. The rocket is positioned above a curved horizon line representing the Earth. To the left of the rocket, the number '5' is visible.

2020

We have reached Soft Landing Phase 2 on 13 January 2020

Around

1,85

million IPv4 addresses left in our pool

Minimum IPv4 Allocation or Assignment is a

/24

Maximum IPv4 Allocation or Assignment is a

/22

Policies under discussion

No.	Policy	Brief	Status
1	Co-Chair Recall	The proposal defines clear and explicit procedures and guidelines for co-chair recall.	Under Discussion
2.	AFRINIC Number Resources Transfer Policy	The proposal sets the rules for intra and inter RIR transfers of IPv4 addresses and ASN and the conditions to be met	Under Discussion
3.	General Abuse Contact	The proposal aims at removing Section 8 of the CPM . It includes abuse-c as part of whois registration by adding it under the section 7.5.1 "Registering contact persons" that already covers the other mandatory contact - admin-c or tech-c.	Under Discussion
4.	Board Prerogatives on the PDP	This proposal aims at ensuring that the AFRINIC Board and Committees prerogatives are well delimited.	Consensus(Not sent to the Board for ratification)

Other Policies under discussion

No.	Policy	Brief	Status
5	Simple PDP Update for the new “Normal”	This simple proposal seeks to eliminate the requirement that states that consensus must only be reached at the PPM, adapt the relevant timings, and at the same time, clarifies the definition of “consensus” and “last call”.	Under discussion
6	PDP Working Group (WG) Guidelines and Procedures	The proposal addresses the problems by defining clear and explicit Working Group guidelines and procedures.	Under discussion
7	Policy Compliance Dashboard	This proposal provides the framework for a “Policy Compliance Dashboard”, to be developed by AFRINIC, and incorporated to MyAFRINIC (and future members communications platforms).	Under discussion
8	Chairs Elections Process	The policy provides a complete process about the requirements for the PDWG co-chairs and also details the election of the co-chairs.	Under discussion
9	RPKI ROAs for Unallocated and Unassigned AFRINIC Address Space	This proposal instructs AFRINIC to create ROAs for all unallocated and unassigned address space under its control. This will enable networks performing RPKI-based BGP Origin Validation to easily reject all the bogon announcements covering resources managed by AFRINIC.	Under discussion

Other Policies under discussion

No.	Policy	Brief	Status
10	IPv4 Inter-RIR Resource Transfers (Comprehensive Scope)	Provides for bi-directional Inter-RIR transfers of IPv4 resources	Under discussion
11	Abuse Contact Policy Update	Aims to solve the problem of contact information that is inaccurate for reporting abuse incidents from concerned IP address blocks	Under discussion
12	Resources Transfer Policy	Provides for Inter-RIR (and Intra-RIR) transfer of IPv4 and ASN resources.	Under Appeal

Capacity Building

2020

1,918

professionals
participated in

20

webinars

The IPv6 helpdesk
attended to

227

requests

866

participants in our
elearning courses

2

IPv6 deployment
recording

30

participants

We all start from
somewhere, why not
start with us?

Study Configure Basic IPv6 e-course at your
convenience

bit.ly/Elearning-Configure-Basic-IPv6



@vnuonline.net - October 14, 2020 8:09 PM

Earn your v6
Stripes

IPv6 Strategy and Planning
Virtual Workshop
for Decision & Policy-makers

Date: 9th and 10th September 2020

bit.ly/Register-IPv6-virtual-course



@vnuonline.net - September 1, 2020 12:11 PM

Advance your
IPv6 Deployment
today

Get IPv6 Deployment Support
for your projects in our IPv6
Helpdesk

bit.ly/6Deploy-EN



@vnuonline.net - August 19, 2020 3:08 PM

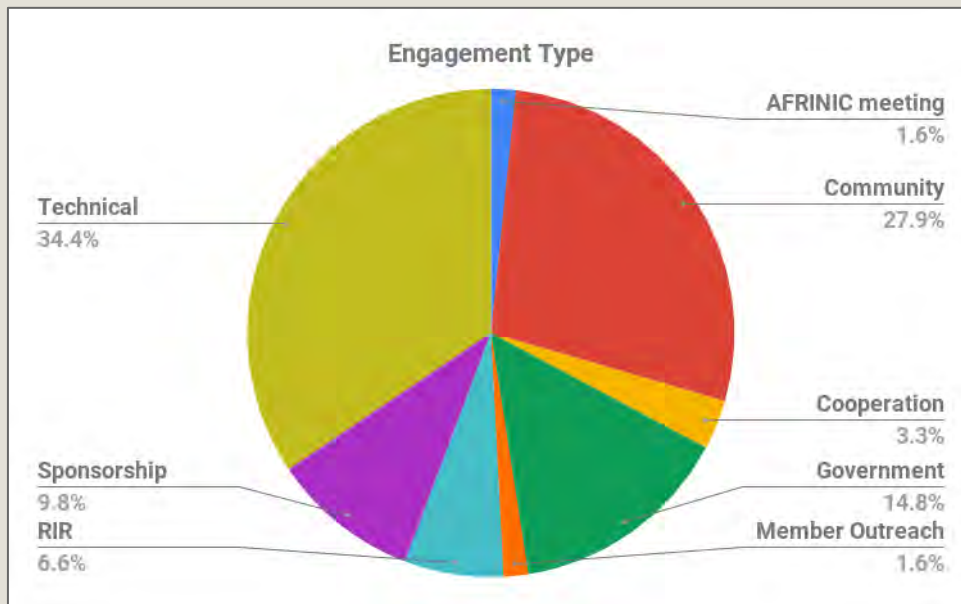
AFFINIC 15th
ANNIVERSARY

Outreach and Engagement Activities

2020

The COVID-19 pandemic forced us to revise and adapt our strategy to the global situation where most of the initiatives went online. However the COVID-19 didn't stop us from delivering and completing several projects planned.

- The Africa Internet Summit 2020 was held online on 14-18 September 2020, with over 500 attendees
- Supported 12 regional NoGs, IGFs, and technical community events
- Participated in 9 Government round table meetings
- Conducted 17 Community outreaches
- 2 IPv6 Deployathons
- Signed 4 MoUs with governments for a total amount of 9 projects



Next Africa Internet Summit 2021 will be
held from

31 May to 4 June 2021

<http://internetsummitafrica.org>





AFRINIC Ltd | 11th Floor Standard Chartered Tower
19 Cybercity, Ebene | Mauritius
www.afrinic.net

t: +230 403 5100 | f:+230 466 6758

8 October 2020
Copyright 2020



APNIC Update

- AS0 ROA for undelegated space
- Increased Internet development activities
- COVID-19 impact

Sanjaya – Deputy Director General
sanjaya@apnic.net

AS0 ROA for undelegated space

- Implementation of policy proposal prop-132 *RPKI ROAs for unallocated and unassigned APNIC address space*
- AS0 ROA is defined in RFC 6483 as a *disavowal of routing origination*
- It covers IPv4 and IPv6 resources listed as “available” or “reserved” in our daily published delegated statistics file
- Deployed under a stand-alone Trust Anchor Locator (TAL)

AS0 ROA for undelegated space (cont'd)

- Reserved or available prefixes will be removed from the AS0 ROA within 5 minutes after it's allocated or assigned
- Initial statistics (Sep 2020)
 - 24 ASNs fetching from the services
 - AS0 ROA is 1,017,637 bytes long
 - 66,109 total prefixes in one object
 - 1,522 IPv4
 - 64,588 IPv6 (high numbers due to APNIC's sparse allocation policy)

Increased Internet development activities

- APNIC Foundation continues to raise Internet development funds from various organizations
 - Additional funding from Asia Pacific Internet Development Trust (APIDT) that manages fund from the auction of IPv4 addresses historically delegated to the WIDE Project in Japan
- Significant increase in APNIC development activities in 2021
 - Instructor-led training (increased number of staff and community trainers)
 - Curriculum and content development on APNIC Academy
 - Infrastructure development support:
 - Root server deployment (focusing on M-root)
 - IXPs, measurement nodes etc.

COVID-19 impact

- No impact to membership growth
 - 8,341 Members by the end of 2020 (budget was 2,262)
- A few deferred payment requests from impacted Members
 - Mostly caught up within 2-3 months
- Office operation
 - Follows Australia and Queensland state directives + extra measures
 - 100% work from home (March 2020 – June 2020)
 - 50% max office occupancy (June 2020 – March 2021)
 - 1.5 meter distancing (March 2021 – current)

More information

- AS0 Implementation report
<<https://conference.apnic.net/50/assets/files/APCS790/AS0-Implementation-report%20.pdf>>
- APNIC 2020 Annual Report
<<https://www.apnic.net/about-apnic/corporate-documents/annual-reports/>>
- APNIC 2021 Activity Plan and Budget
<<https://www.apnic.net/about-apnic/corporate-documents/plans-and-strategies/>>

LACNIC Update

Main Highlights from 2020 @ ARIN

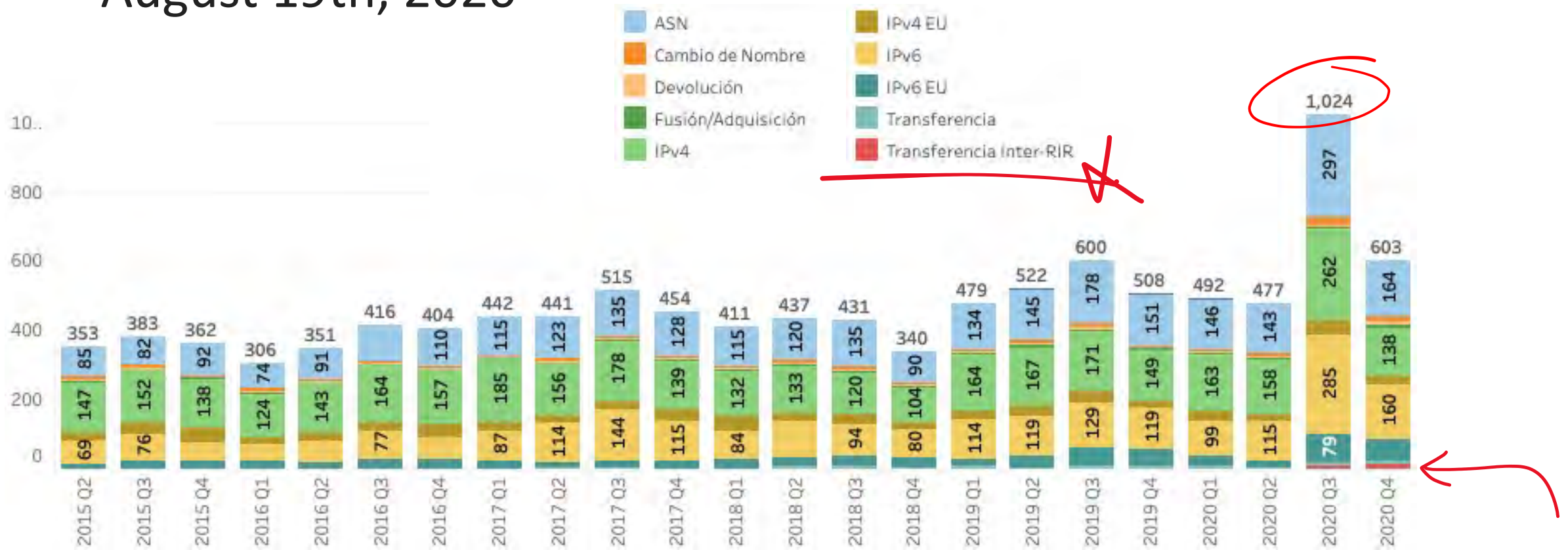


Members, Regional Community, Global Internet

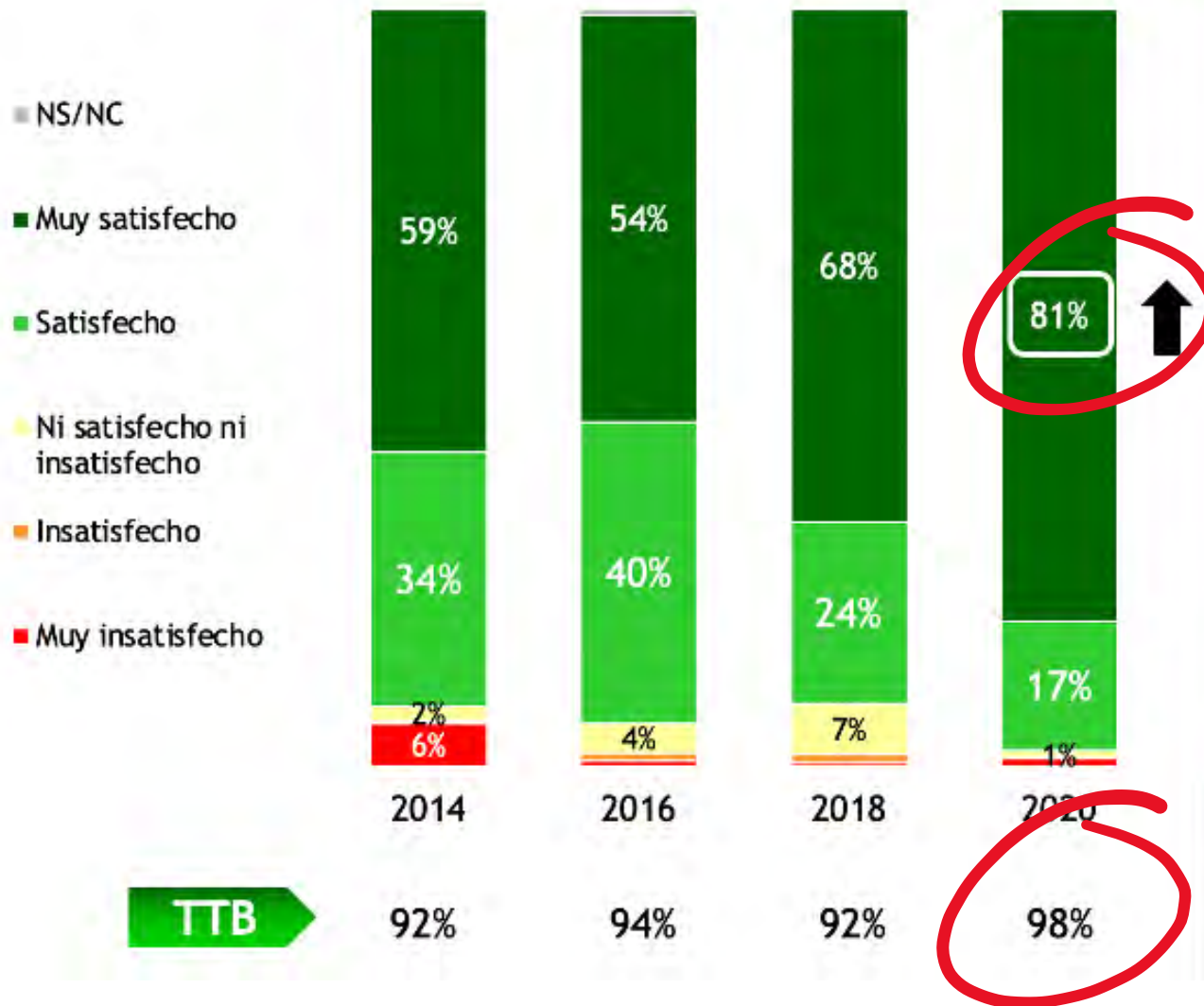
SERVICES AND REGIONAL COMMUNITY

IPv4 Exhaustion – End of Phase 3

- August 19th, 2020



Customer Satisfaction Survey



- **98% general satisfaction with LACNIC Services TTB (top two boxes)**
 - Highest level in LACNIC history and 6 points above the second highest (2018).
- Best answer grew from 68% to 81%: **“Muy Satisfecho (Highly Satisfied)”**

Statutory Electoral Processes

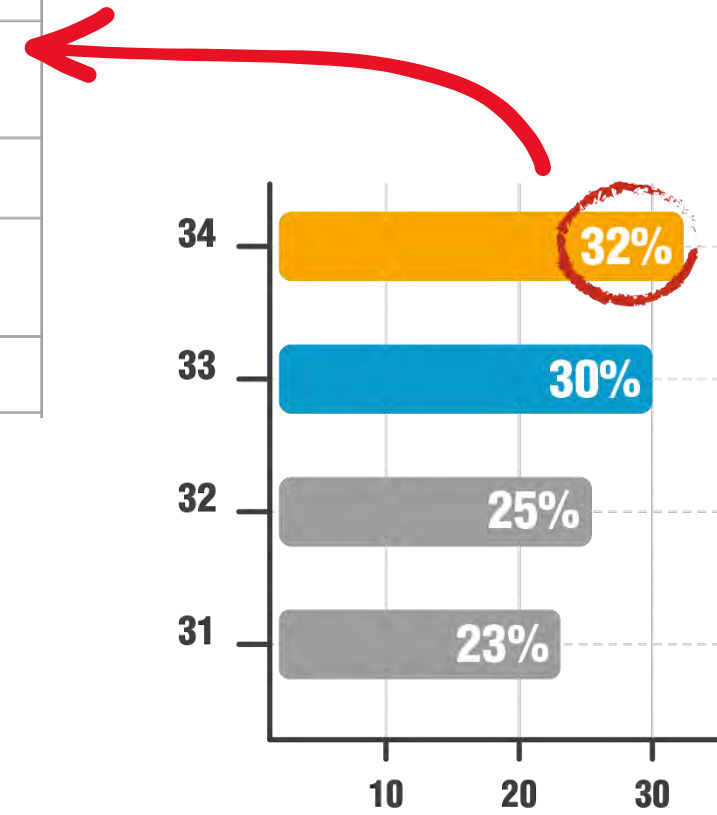
- Both, statutory electoral processes had similar turnout during 2020
 - 12% of current membership.
 - From the highest point >20% in 2018.



- Five seat filled, 2 Electoral Commission, 1 Fiscal Commission and 2 in the Board.

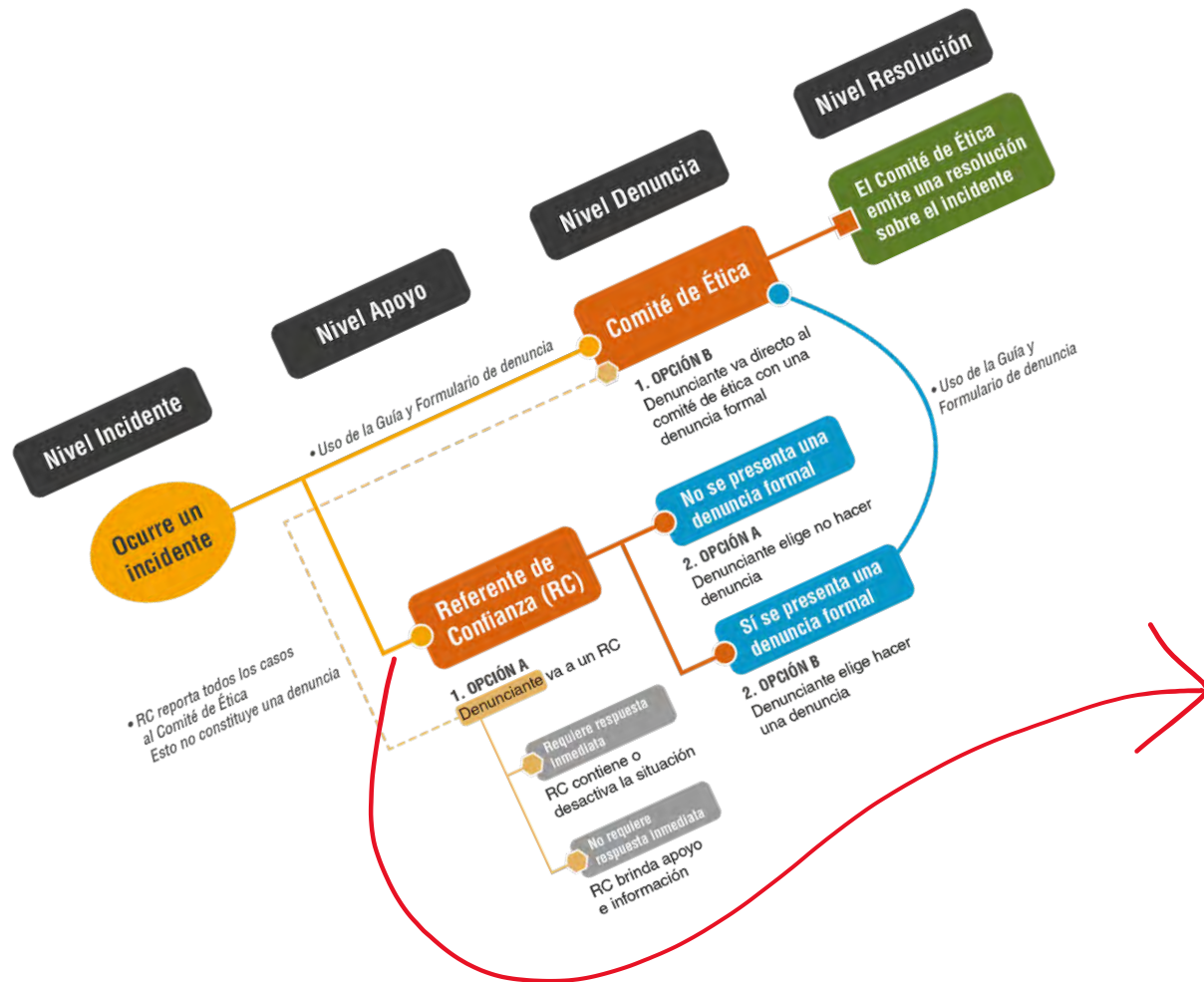
Annual Events

INDICADOR	META	LACNIC 33	LACNIC 34 LACNOG 2020
Asistentes presenciales	500	1.036 virtuales	956 virtuales
Tasa de respuesta de la encuesta de satisfacción	30%	30%	32%
Satisfacción general en la encuesta	>=90% TTB	93% TTB	98% TTB
Satisfacción general de los asociados en la encuesta	>=90% TTB	91% TTB	98% TTB
Satisfacción con la agenda	>=90% TTB	95% TTB	95% TTB



- Highest level of satisfaction with LACNIC events
 - 98% during LACNIC 34.
- Increasing level of participation in Survey

LACNIC's Community Code of Conduct



Community

Lía Solís



lia [at] ext [.] lacnic [.] net

Max Larson Henry



max [at] ext [.] lacnic [.] net

Ricardo Patara



ricardo [at] ext [.] lacnic [.] net

LACNIC Staff

Adriana Rivero



adriana [at] lacnic [.] net

Ernesto Majó



ernesto [at] lacnic [.] net

Kevon Swift



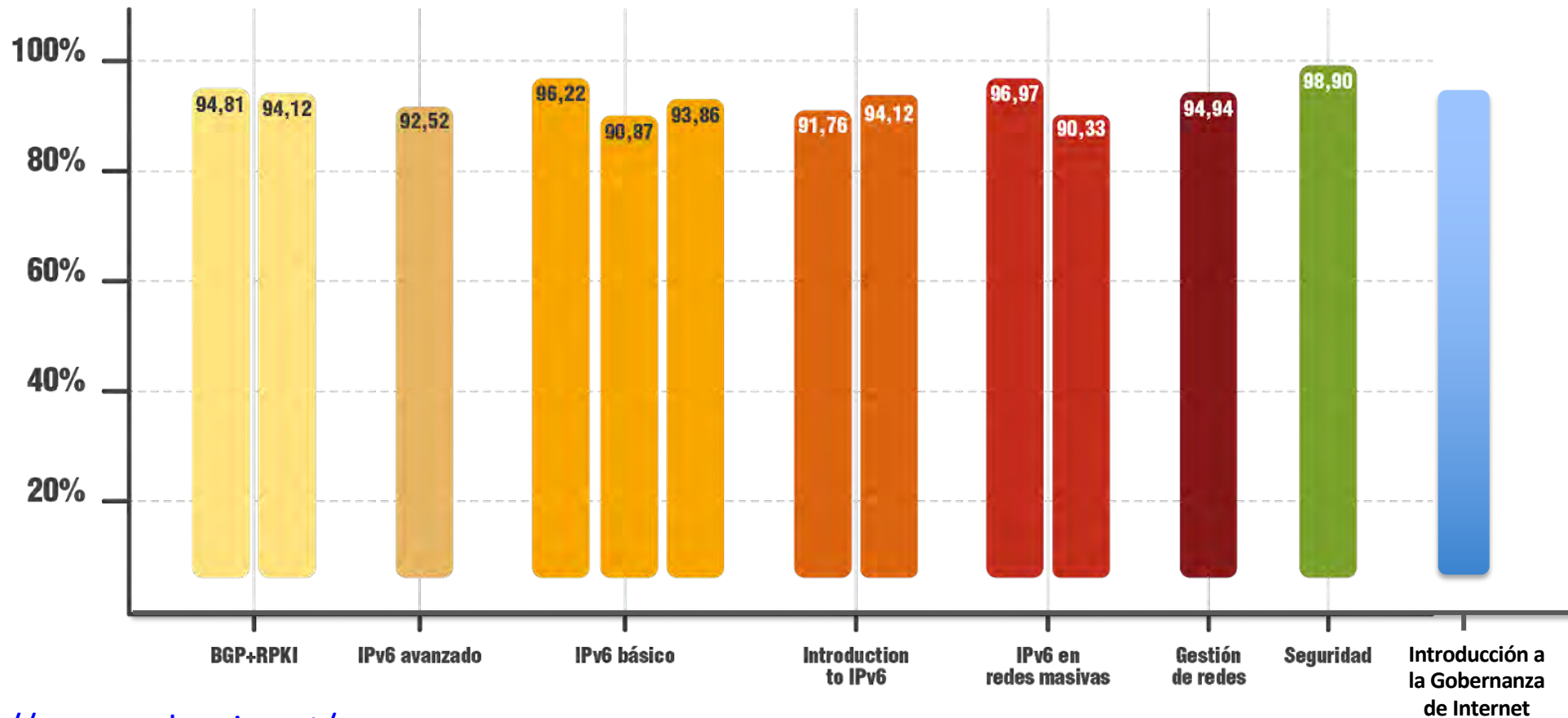
kevon [at] lacnic [.] net

<https://www.lacnic.net/5034/2/lacnic/trusted-representatives>

Online Training (LACNIC Campus)

Nivel de satisfacción

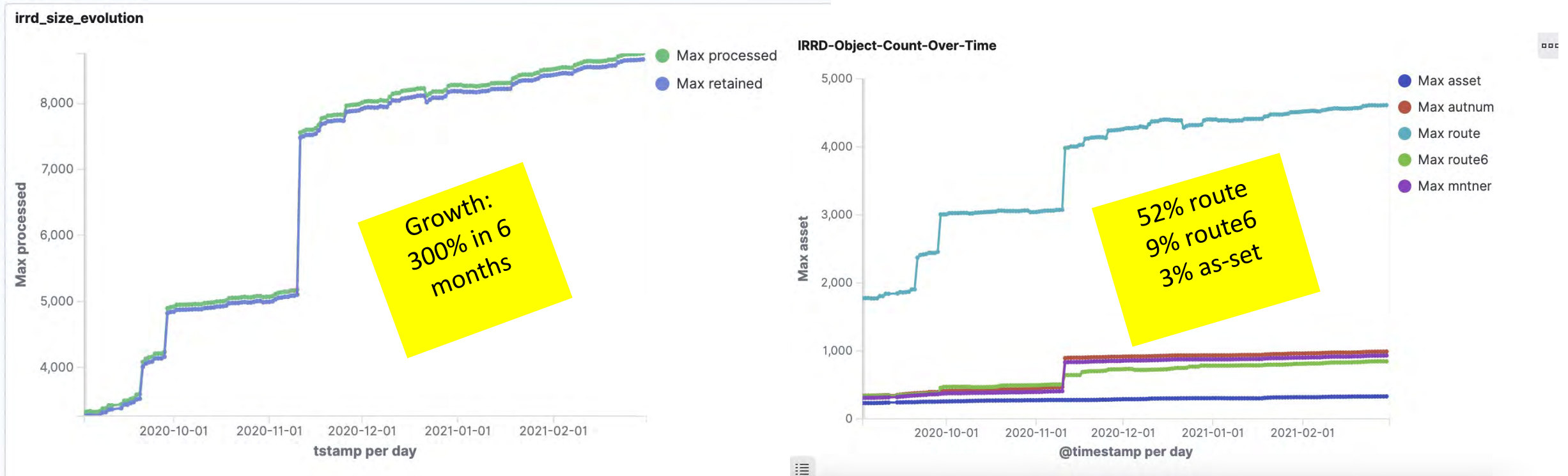
94,11% Promedio alcanzado



<https://campus.lacnic.net/>

Internet Routing Registry de LACNIC

Object Repository Evolution



- In early 2020 we launched our IRR.
- By mid 2020 we announced the support of Near-Real-Time Mirroring (NRTM) using IRRd Version 4.

Additional Root Servers nodes in LAC



RSO	Place	Organization	LACNIC Role	Operational Date
I	Santo Domingo, Ecuador	IXP Ecuador	Economic and Coordination	11-jan.-2020
L	Ecuador	NAP Ecuador	Economic and Coordination	27-feb.-2020
I	Concepción, Chile	PIT Chile	Economic and Coordination	27-apr.-2020
I	Bolivia	Comteco	Economic and Coordination	22-sep.-2020
I	Mexico	Transtelco	Coordination	14-oct.-2020

Financial Execution

INTERNAL PROCESSES

Alternative Initiatives 2020

ID Per	PERSPECTIVA	Presup 2020	% 2020
1	1 - Clientes - Comunidad	800K	84%
2	2 - Procesos e Infraestructura	53K	6%
3	3 - Capital Interno	10K	1%
4	4 - Sostenibilidad Financiera	42K	4%
Op	Operativo	45K	5%
Total		949K	100%



- Expenses Execution @ 30/06: **60%**
- Presented 60 initiatives for LACNIC Board Consideration.
- Expenses Execution @ 31/12: **85%**

Last but not least...

HUMAN CAPITAL

Great Place To Work

- Great Place to Work for Women in Uruguay, 2020
- Great Place to Work in Latin America, 2020
- GPTW Assessment by Employees 2021: **93%**

Oct





RIPE NCC

RIPE NETWORK COORDINATION CENTRE

RIPE NCC Update

Business as (almost) usual

Hans Petter Holen | ARIN 47 | April 2021

The Registry in 2021

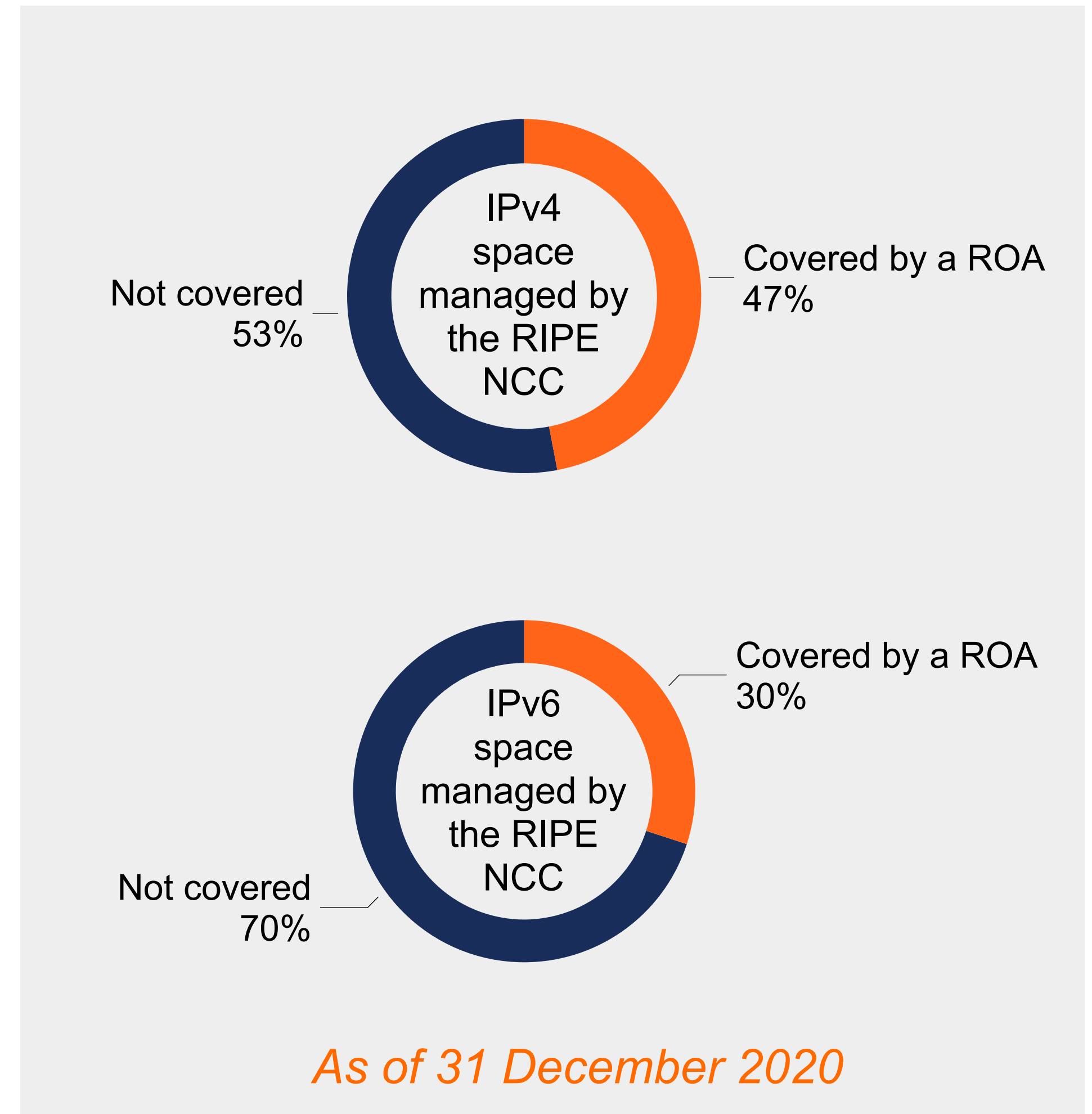


- Rolling out our streamlined due diligence process for updates that are defined to be 'low risk'
- Improved checks of membership information against EU sanctions list
- More than a year since IPv4 run-out - requests via the IPv4 Waiting List currently take less than one day!
 - <https://www.ripe.net/manage-ips-and-asns/ipv4/ipv4-pool>

RPKI Resiliency



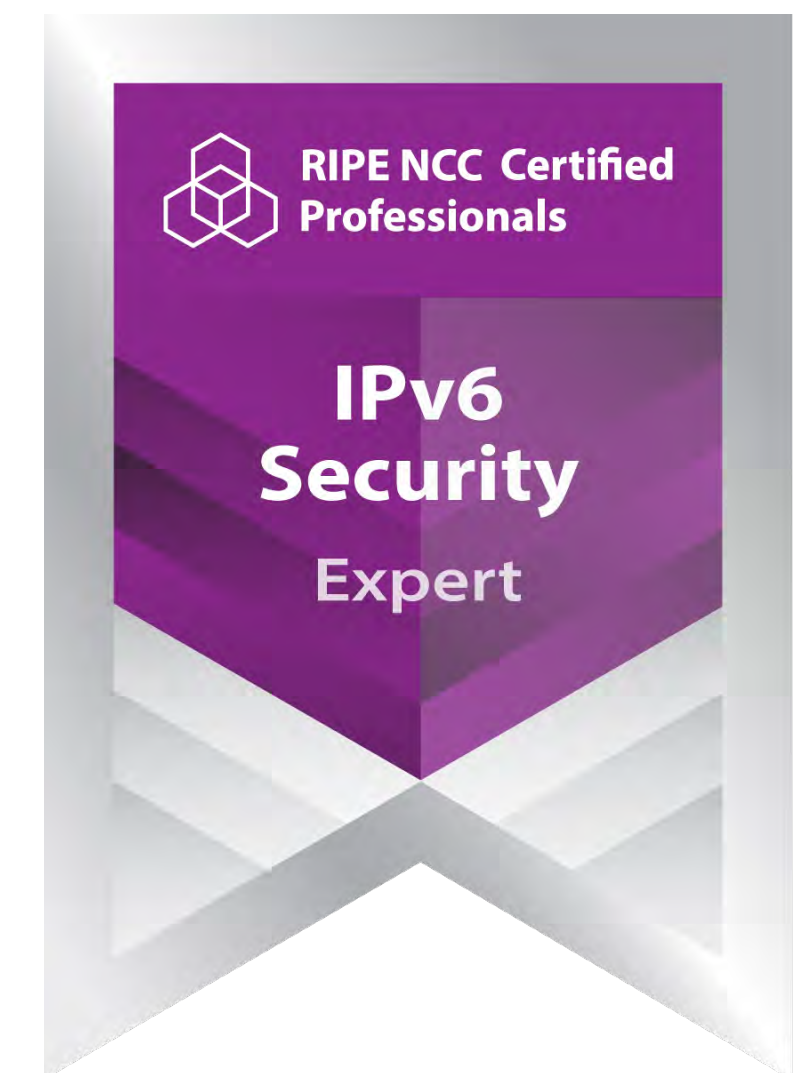
- Ensuring a stable and resilient RPKI Trust Anchor and Certificate Authority
 - Third-party audits of our internal framework and RFC compliance
 - We've created an RPKI audit framework (SOC2 type II) that can be used by all Trust Anchors
 - The RPKI Validator will be retired on 1 July 2021



E-Learning All the Way



- Launched the RIPE NCC Certified Professionals programme
 - RIPE Database Associate exam
 - IPv6 Fundamentals - Analyst exam
 - IPv6 Security Expert exam (under development)
- Updated e-learning courses in the RIPE NCC Academy, new courses being developed
- All in-person training courses have been adapted into webinars



Information Services



- Improve resiliency of our DNS infrastructure
 - New hosted sites for our reverse DNS infrastructure
- RIPE Atlas
 - RIPE Atlas Software probes can now be installed on CENTOS7 and 8, Debian 9 and 10, Raspbian, Docker and Turris Routers
- RIPEstat
 - Moving parts to the cloud and more automatic service monitoring
 - Updating BGPlay with new features

IT Security and Support

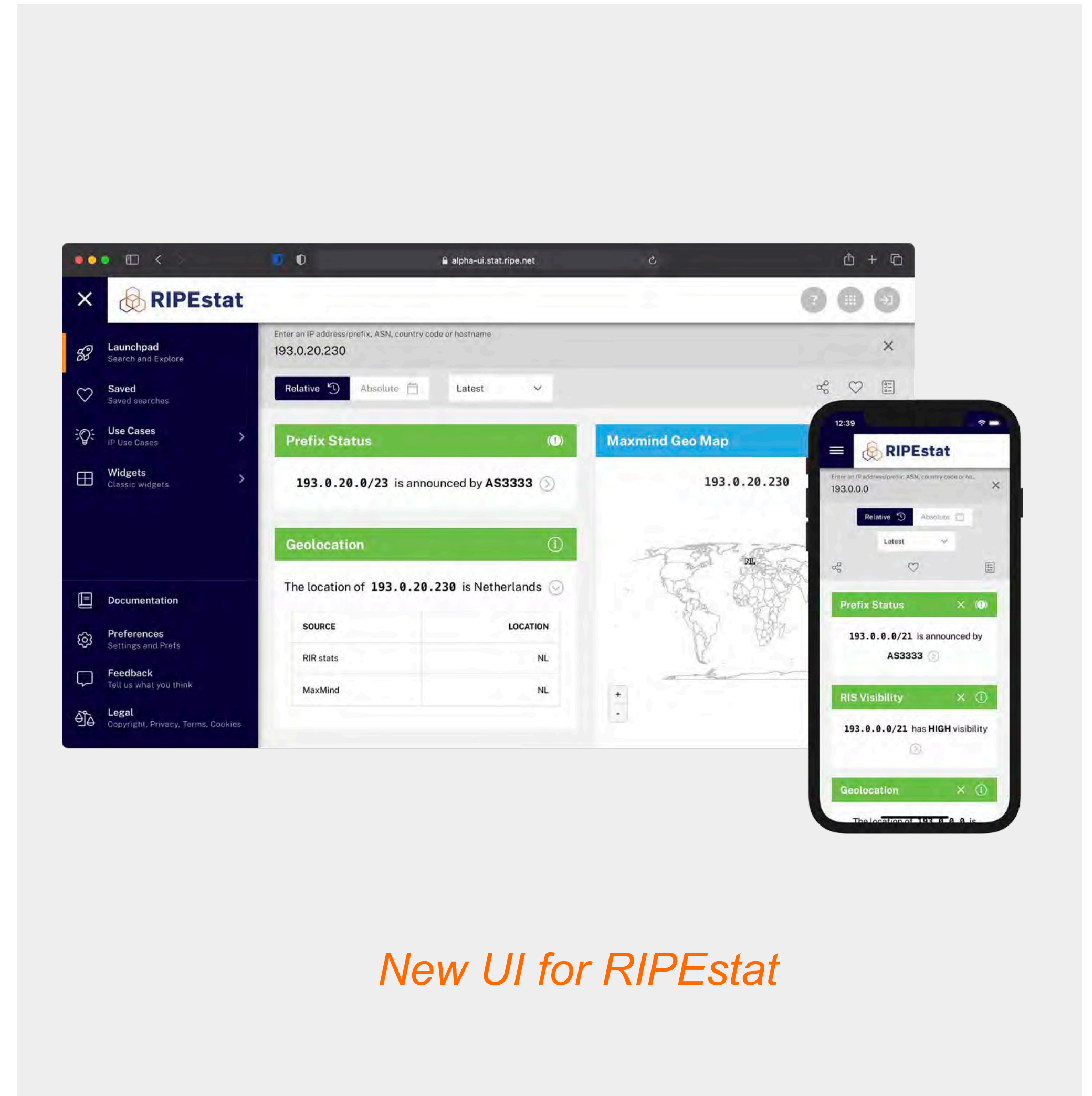


- IT Security
 - Expanding security controls to cover all operational, technical and business processes
 - Integrating this in our internal risk management framework
 - Defining operations within ISO/IEC 27000 framework with the aim of reaching the level of ISO 27001 certification
- IT Support
 - Decrease technical debt
 - Move non-business critical elements to outsourced/cloud solutions

Improving User Experience



- A focus on improving user experience
- Ensuring a consistent user experience across our services
- New UI for RIPEstat and RIPE Atlas
- A RIPE Labs revamp is underway
- The RIPE NCC Academy also moved to the new look in early 2020



Join us for RIPE 82





Questions



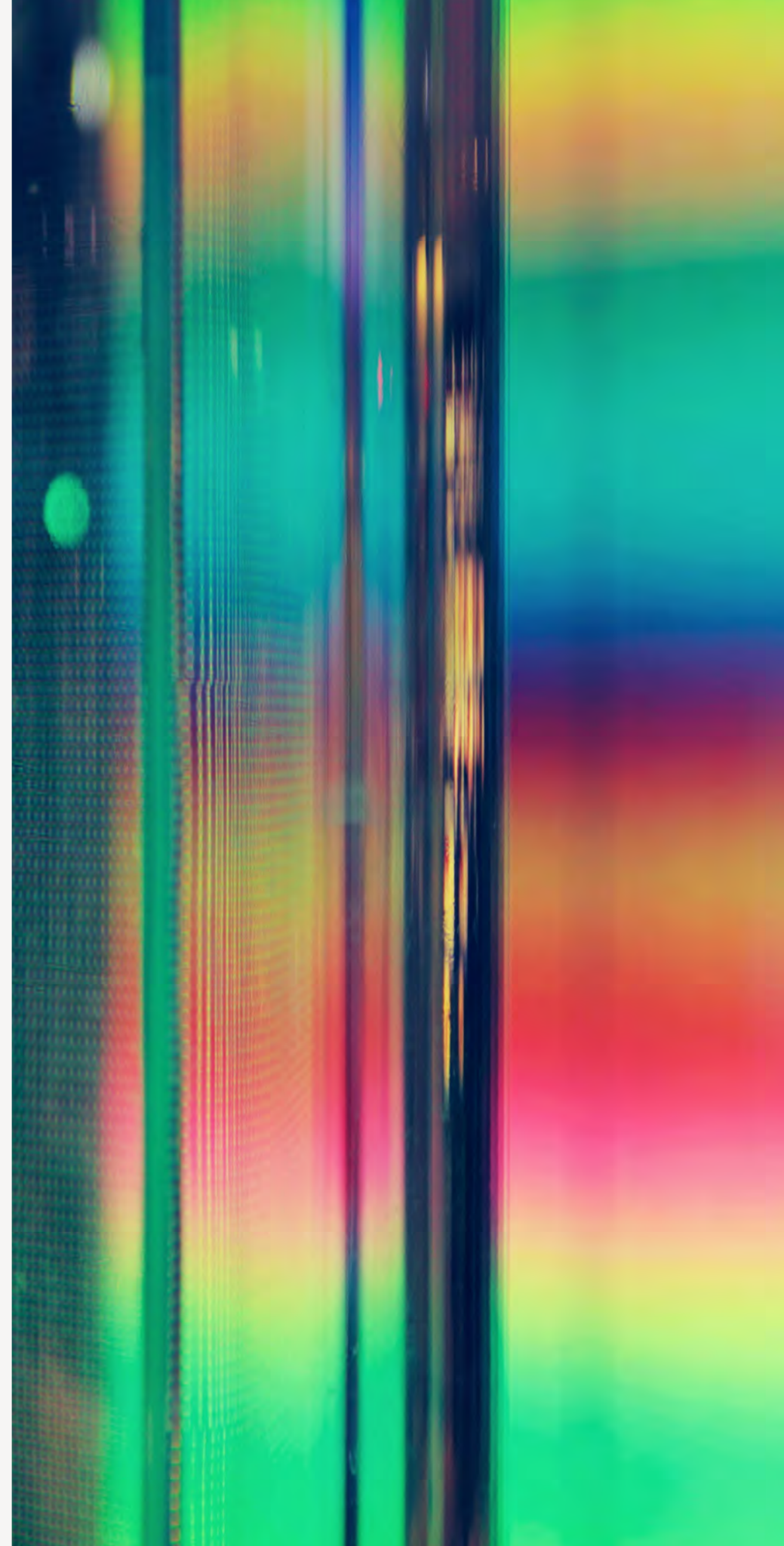
hph@ripe.net
[@hpholen](#)
[@ripencc](#)

IANA Update

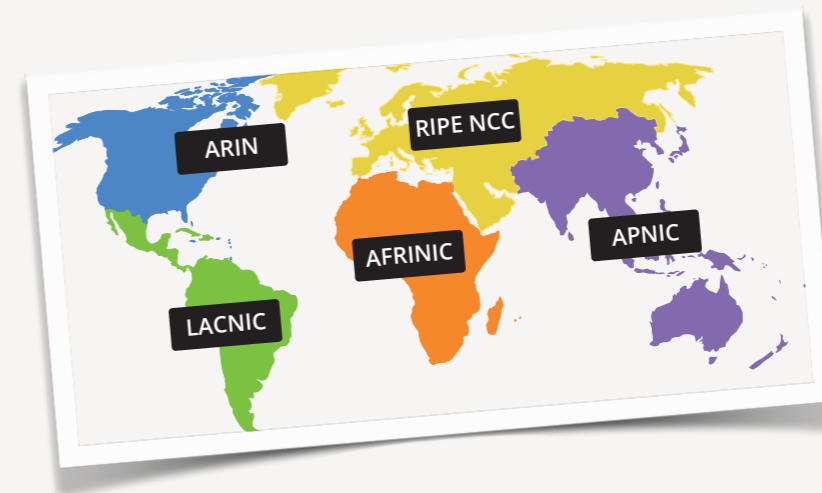
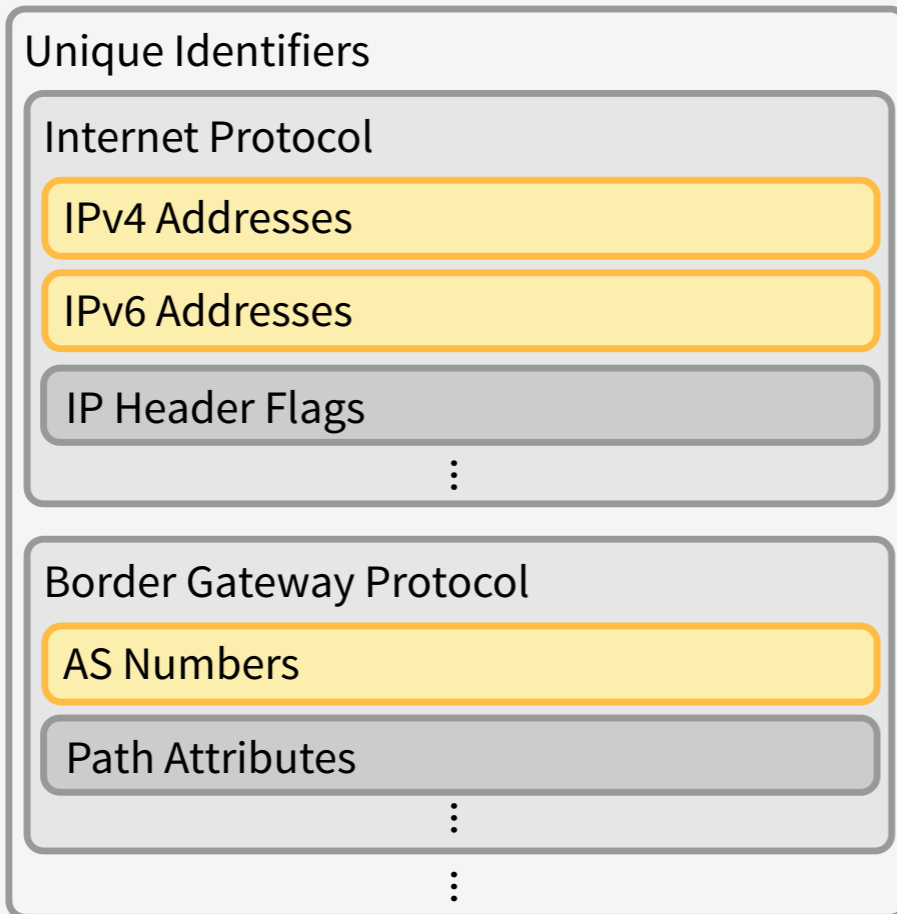
ARIN 47

Kim Davies
VP, IANA Services, ICANN; President, PTI

April 2021



Number Resource Services



Number Resource Dashboard

Number Resource Allocation Data

Our primary role in managing Internet number resources is to provide pools of unallocated IP addresses and AS numbers to Regional Internet Registries (RIRs) according to their needs as described by ICANN's Global Addressing Policies.

These policies contain allocation algorithms that are based on the level of resource utilization of prior allocations. We track allocation rates here and provide analysis of eligibility for future RIR allocations.

IP Address Allocations

The chart below summarizes allocations of IPv6 addresses RIRs have made to network operators. IPv4 is not represented as IANA's supply has been exhausted and our allocation method for recovered address space does not factor in utilization.

Detailed information is available for each RIR by clicking the chart.

RIR	Number of IPv6 Address Allocations in /32s
AFRINIC	~10,000
APNIC	~200,000
ARIN	~650,000
LACNIC	~10,000
RIPE NCC	~950,000

IPv6 Allocations

of IPv6 address space are made to regional Internet registries according to their needs, allocation rates they publish. Specific space of existing allocations is less than the following 9 months.

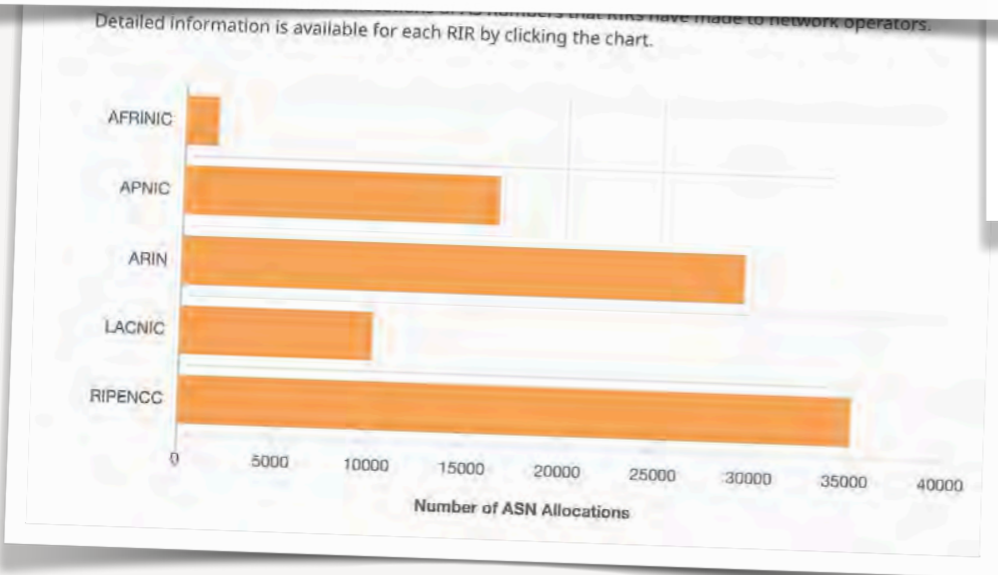
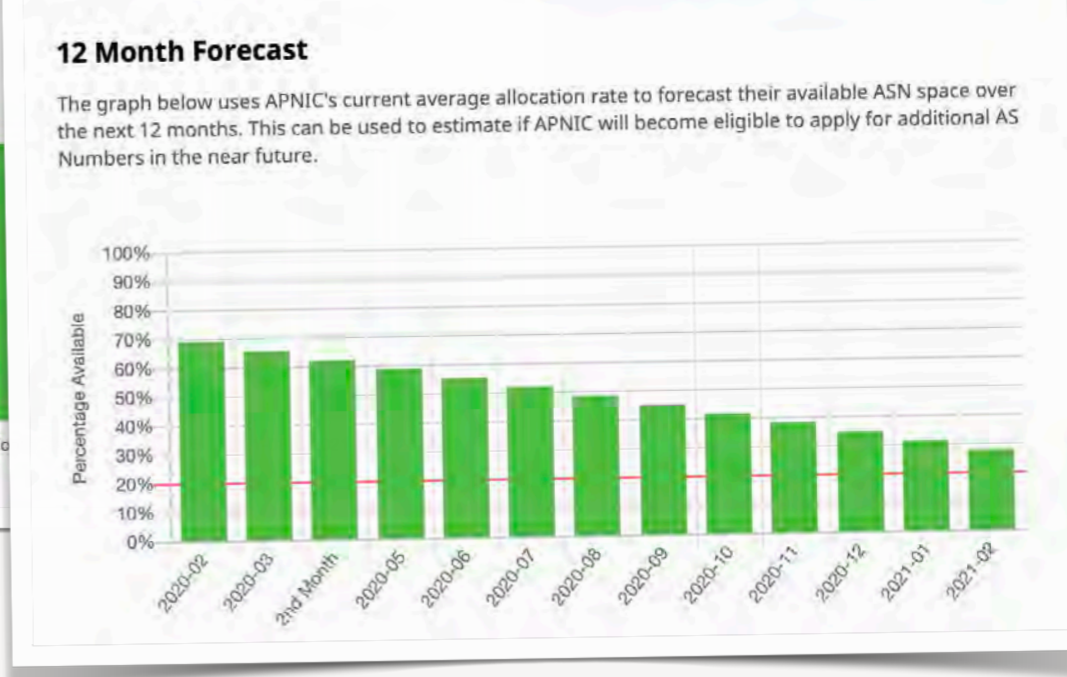


APNIC ASN Allocations

Allocations of autonomous system numbers are made to regional Internet registries according to their needs, based on allocation rates they publish. Specifically, RIRs are eligible for further allocations if their available address space is 80% allocated, or the available pool does not satisfy two months of need based on the previous six months' average allocation rate.

Current Pool and Eligibility

Eligibility	Not Eligible
Available	1,412
Two Month Need	140
Monthly Average	70
Last Allocation by IANA	2,048 ASNs (2019-06-12)



<https://iana.org/numbers/allocations>

SLA Performance

Number Resource Performance

December 2018

Performance Summary

These performance targets are derived from section 4.3 of the Service Level Agreement for the IANA Numbering Services for the allocation of unicast IP addresses and AS numbers to the five Regional Internet Registries.

- ✓ Requests acknowledged on time (100%)
- ✓ Responded on time (100%)
- ✓ Implemented on time (100%)
- ✓ Implemented accurately (100%)

Individual Requests to Regional Internet Registries

Date	Request Type	Request Processing Details
2018-12-06	AS Number	<ul style="list-style-type: none">✓ Responded on time (0.0 days) More info✓ Implemented on time (1.1 days)✓ Accurately implemented

Status of Unallocated Recovered IPv4 Unicast Addresses

Unallocated remaining Recovered IPv4 Address Space is: 3,328 (11.7 bits) available to allocate. Allocations made from the Recovered IPv4 Address Space are made in accordance with the [Global Policy for Post Exhaustion IPv4 Allocation Mechanism by the IANA \(Ratified 6 May 2012\)](#).

the IANA
regional

the IANA
regional

tries

[More info](#)

tries

[More info](#)

(0.8 days)

ed

<https://iana.org/performance>

Annual Review

The screenshot shows the NRO website header with logos for AFRINIC, APNIC, ARIN, lacnic, and RIPE NCC. The navigation menu includes ABOUT, ACCOUNTABILITY, INTERNET GOVERNANCE, TECHNICAL COORDINATION, POLICY, and DOCUMENTS. The main content area features a news article titled "2020 IANA Numbering Services Review Committee Report Published" dated 10 MAR 2021. The article text begins with "On behalf of the IANA Review Committee" and "Dear colleagues," followed by a paragraph stating that the IANA RC is pleased to announce the publication of the 2020 IANA Numbering Services Review Committee Report. It mentions a 30-day public comment period on the IANA Performance Matrix Summary Report published by the RIRs. The article also notes that the IANA RC was formed in 2016 and is responsible for publishing an annual report as advice to the NRO EC for its evaluation of the IANA numbering services. The report is based on the 2020 IANA Performance Matrix Summary Report published by the RIRs.

NRO

AFRINIC APNIC ARIN lacnic RIPE NCC

ABOUT ACCOUNTABILITY INTERNET GOVERNANCE TECHNICAL COORDINATION POLICY DOCUMENTS

2020 IANA Numbering Services Review Committee Report Published

10 MAR 2021

On behalf of the IANA Review Committee

Dear colleagues,

The IANA Numbering Services Review Committee (IANA RC) is pleased to announce that it has published the 2020 IANA Numbering Services Review Committee Report.

This report follows a 30-day public comment period on the IANA Performance Matrix Summary Report published by the RIRs seeking input from the broader community.

The IANA RC was formed in 2016 and is responsible for publishing an annual report as advice to the NRO EC for its evaluation of the IANA numbering services. The report is based on the 2020 IANA Performance Matrix Summary Report published by the RIRs.

SEARCH

Search **SEARCH**

QUICK LINKS

- NRO News
- ASO Review 2017
- Document Archives
- NRO FAQ
- ASO Website

CATEGORIES

- Documents
- Internet Governance Forum

Audit Programs



Registry Assignment and Maintenances Systems (including number resources). 2020 report issued with no exceptions.



Root Zone KSK.

2019 report issued with no exceptions, 2020 expected soon. This report provides confidence that the trust anchors for the domain name system are properly managed.



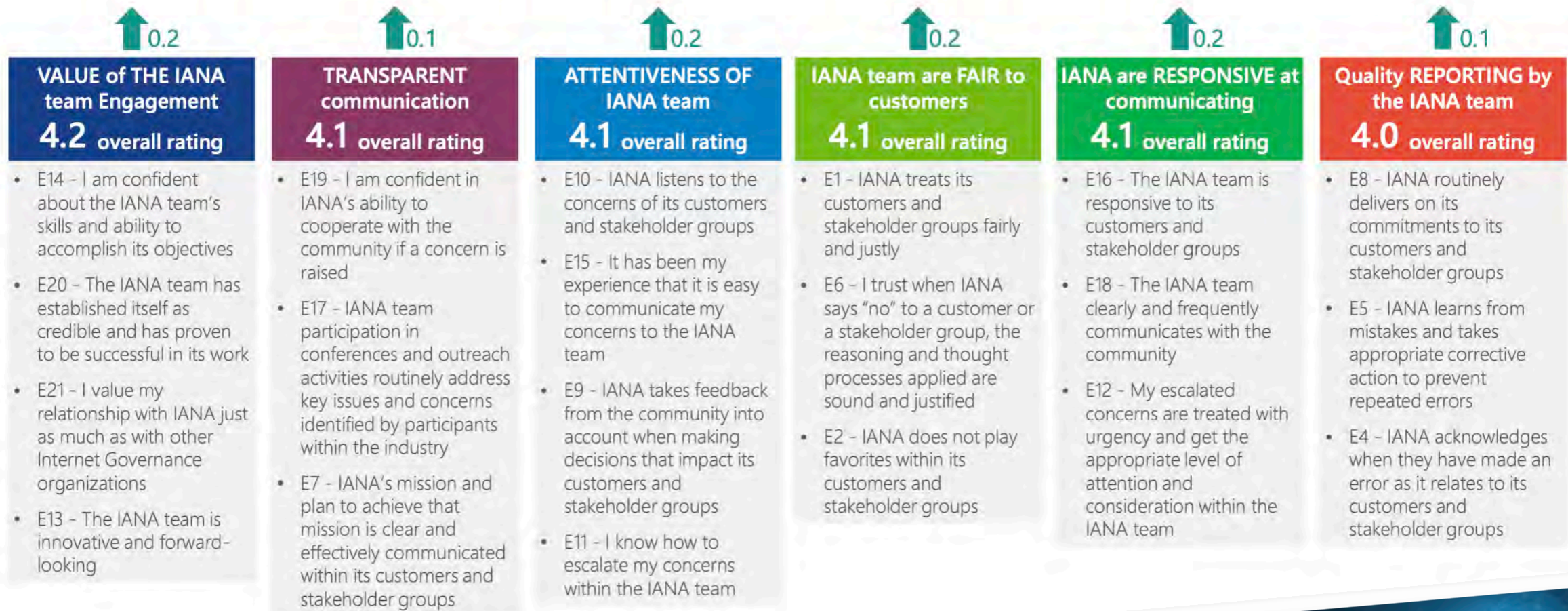
Our 2020 audit program was conducted by RSM.

<https://iana.org/audits>

Customer Satisfaction

SECTION 1 – IANA ENGAGEMENT WITH CUSTOMERS/STAKEHOLDER GROUPS

IANA's engagement ratings have increased in all categories this year



© Echo

| 13

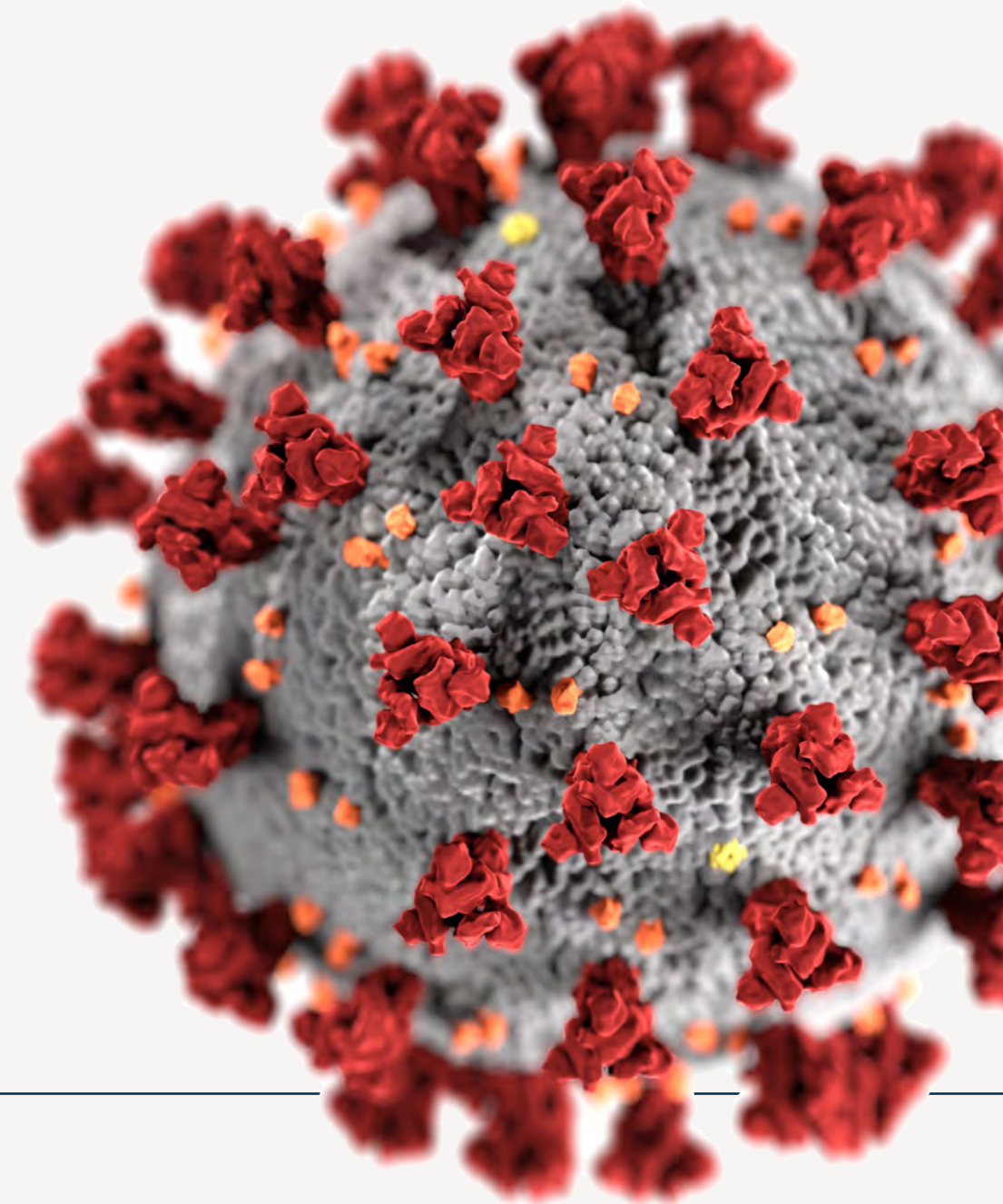
Q1. To what extent do you agree or disagree with the following statements about IANA's...
 Categories represent average rating on 5-point scale where 5=strongly agree and 1=strongly disagree
 Arrow indicates change in score from 2019
 Base: All respondents (n=149)

<https://iana.org/performance>

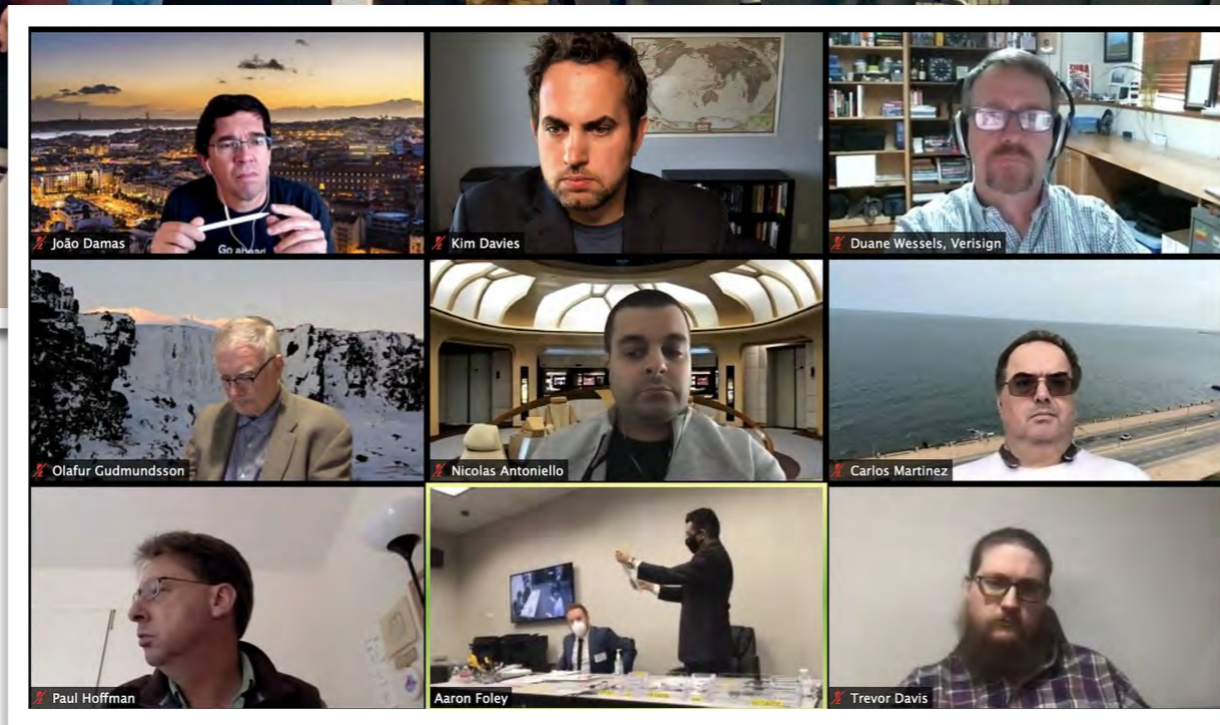
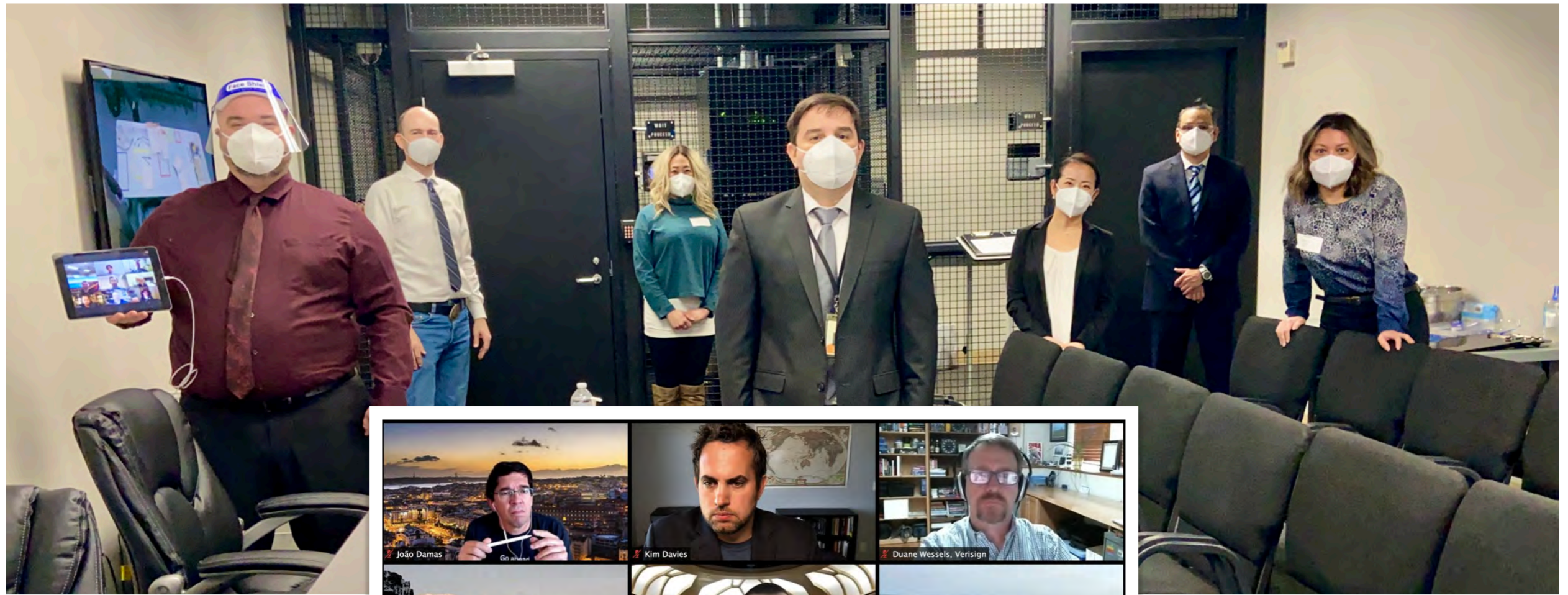


Pandemic Response

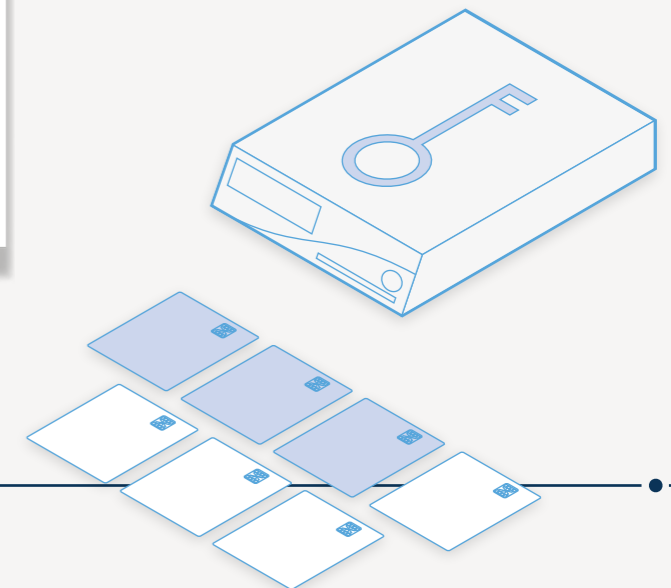
- No impact on core IANA services
- Proved our competency for remote remote working which informs future disaster recovery planning



Key Signing Ceremonies



<https://iana.org/dnssec/ceremonies>



Thank you!

kim.davies@iana.org