

A stylized sun with a blue circular center and a yellow outer ring. The sun has several yellow spikes of varying lengths extending from the ring. It is positioned in the top right corner of the image.

2020 Annual report

www.lacnic.net

LACNIC

· Intro Wardner Maia	3
· What is LACNIC?	4
· Who is Part of LACNIC?	5
· Our Members	7
· The LACNIC Team	9
· Highlights of 2020	10

Internet Number Resource Management

· Resource Assignment Statistics for 2020	13
---	----

Community Engagement

· The LACNIC Community	18
· LACNIC Events in 2020	18
· LACNIC Training Center	21
· Policy Development	22
· Technical Forums	23

LACNIC and Internet Governance

· Support for Internet Governance Spaces	24
· Líderes 2.0	24
· Interaction with Governments and Decision Makers	25
· Participation in Telecommunications Forums	25
· Follow-Up and Contribution to Regional Digital Agendas	25

An Open, Stable and Secure Internet

· Strengthening Internet Infrastructure	26
· Promoting Cybersecurity	28
· Promoting IPv6 Deployment	30
· R+D Projects at LACNIC	30

The Internet and Its Social Impact

· IT Women	32
· FRIDA Program	33

Annexes

34

Reinforcing Our Commitment to the Community and to Our Members

LACNIC is committed to engaging our community and our members and to meeting their expectations, a commitment that has been reflected in most of our actions throughout 2020.

In addition to being a difficult year, 2020 was also extremely challenging due to the pandemic and its various impacts. This situation prompted us to continue striving to maintain our operations and to improve our processes and thus be able to continue building community.

Among other things, this past year will be remembered as the year of IPv4 exhaustion, a process that reached a successful conclusion thanks to the participation of LACNIC members and the community in defining policies that allowed us to implement a smooth and gradual termination. All the more reason why the LACNIC Board continues to encourage the organizations of our region to accelerate IPv6 deployment and all the stakeholders involved to take measures in this regard.

Likewise, in order to continue with the spirit of collaboration and community building that characterizes our face-to-face meetings, we reinvented and restructured the format and program of our LACNIC 33 and LACNIC 34 events, maintaining relevant activities such as our technical tutorials, the LACNIC Technical Forum, and the Public Policy Forum.

The pandemic taught us that the Internet is essential for our education, for our work, for our personal and affective relations. This helped us pay attention to and focus on how indispensable our service is, on taking care of the resource allocation processes, and on reinforcing some key aspects of regional Internet development.

Here we must highlight the new service we added in 2020 for both our community and our members, namely, our Internet Routing Registry (IRR), a database where operators share their routing policies leveraging the authoritative information we have as an RIR.



Wardner Maia, Board of Directors President

One again we conducted our annual member satisfaction survey which allows us to maintain and improve LACNIC's standards of excellence. Results of the 2020 survey show an overall satisfaction level of 98%, a record high in the organization's history.

For the ninth consecutive year, I am proud to say that LACNIC placed fifth among the best places to work in Uruguay according to the ranking prepared by GPTW.

A challenging year has come to an end, a year rife with commitments, activities, and challenges that have allowed us to be closer to you, our community, and to continue to fulfill our leading role by contributing to the development of the Internet across the region.

What is LACNIC?

We are an international non-government organization established in Uruguay in 2002. We are responsible for assigning and managing Internet number resources (IPv4, IPv6), Autonomous System Numbers, and Reverse Resolution for the region.

LACNIC contributes to regional Internet development through an active cooperation policy, promotes and defends the interests of the regional community, and helps create conditions such that the Internet will become an effective instrument for social inclusion and economic development in Latin American and the Caribbean.

Vision and Mission

Our vision is to lead the strengthening of a single, open, stable and secure Internet at the service of the development of Latin America and the Caribbean, promoting the collaborative Internet model.

We manage Internet number resources for Latin America and the Caribbean through the participatory development of policies, based on a culture of excellence, transparency and continuous improvement, adding value to our community by:

- Building capacity within the regional community through training, cooperation, and collaboration with other organizations;
- Engaging in, and contributing a regional perspective to, industry and Internet Governance forums;
- Strengthening the multistakeholder, participatory, bottom-up Internet Governance model; and
- Promoting the use and development of Internet standards, involving the regional community in the process.



Who is part of LACNIC?

The LACNIC Board of Directors

<https://www.lacnic.net/1335/2/lacnic/board-of-directors>

LACNIC is managed and run by a Board of seven directors elected by LACNIC members, more than 11,000 organizations operating networks and providing services in 33 different Latin American and Caribbean territories. During 2020, the LACNIC Board was made up as follows:



**Wardner
Maia**

President
Brazil
Term ends:
December 2022



**Javier
Salazar**

Vice President
Mexico
Term ends:
December 2022



**Gabriel
Adonaylo**

Treasurer
Argentina
Term ends:
December 2020



**Rosalía
Morales**

Deputy Treasurer
Costa Rica
Term ends:
December 2020



**Esteban
Lescano**

Secretary
Argentina
Term ends:
December 2021



**Evandro
aronil**

Deputy Secretary
Brazil
Term ends:
December 2021



**Alejandro
Guzmán**

Member
Colombia
Term ends:
December 2021



**Oscar
Robles**

Executive Director /
CEO

Fiscal Commission

<https://www.lacnic.net/1192/2/lacnic/electoral-commission>

The Fiscal Commission is LACNIC's control organ, charged with supervising that all accounting and administrative standards are met and overseeing compliance with LACNIC's legal and statutory framework. In 2020, this Commission was made up as follows:

Name	Country	Term
Hernán José Arcidiácono	Argentina	2017 Elections - 2020 Elections
Aristóteles Dantas Gaudêncio	Brazil	2019 Elections - 2022 Elections
Adriana Ibarra	Mexico	2018 Elections - 2021 Elections

Electoral Commission

<https://www.lacnic.net/1204/2/lacnic/fiscal-commission>

The Electoral Commission supervises elections, [ensuring the transparency of the entire process](#). This Commission analyzes candidate nominations considering the regulations regarding incompatibilities and solves any issues that may arise during an election. It also validates vote counts and proclaims final election results.

Throughout 2020, this Commission faced major challenges such as auditing and understanding the election processes that are open to the community, namely the elections to appoint members of the [ASO AC](#) and the [Review Committee](#) as well as the chairs of the Policy Development Process. [Here](#) you will find more information about these challenges and other issues faced by the Electoral Commission during 2020.

In 2020, this Commission comprised the following members:

Name	Country	Term
Vivian Valverde	Costa Rica	2017 Elections - 2020 Elections
Nancy Julia Cordova Gamarra	Peru	2018 Elections - 2020 Elections
Marcelo Corradini	Brazil	2018 Elections - 2021 Elections
Carolina Cofré Fernández	Chile	2018 Elections - 2021 Elections
Horacio Tedesco	Argentina	2019 Elections - 2022 Elections

Ethics Committee

<https://www.lacnic.net/2359/2/lacnic/>

The [LACNIC Code of Ethics](#) and the [LACNIC Community Code of Conduct](#) are interpreted, applied and updated by the Ethics Committee, which may handle cases that transcend the sphere of operational authority. In 2020, this Committee was made up as follows:

- Adriana Ibarra (Fiscal Commission)
- Esteban Lescano (Board of Directors)
- Oscar Robles-Garay (CEO)

Within this context, in 2020 the LACNIC Board approved an update to the LACNIC Community Code of Conduct which incorporated elements suggested by a group of community leaders. Modifications included the creation of the figure of [trusted representatives](#) and a [guide to help members of the community in the submission of complaints](#).

Our Members

LACNIC ended 2020 with a total of 11,657 members, including the most important companies, organizations and universities of Latin America and the Caribbean.

Categories

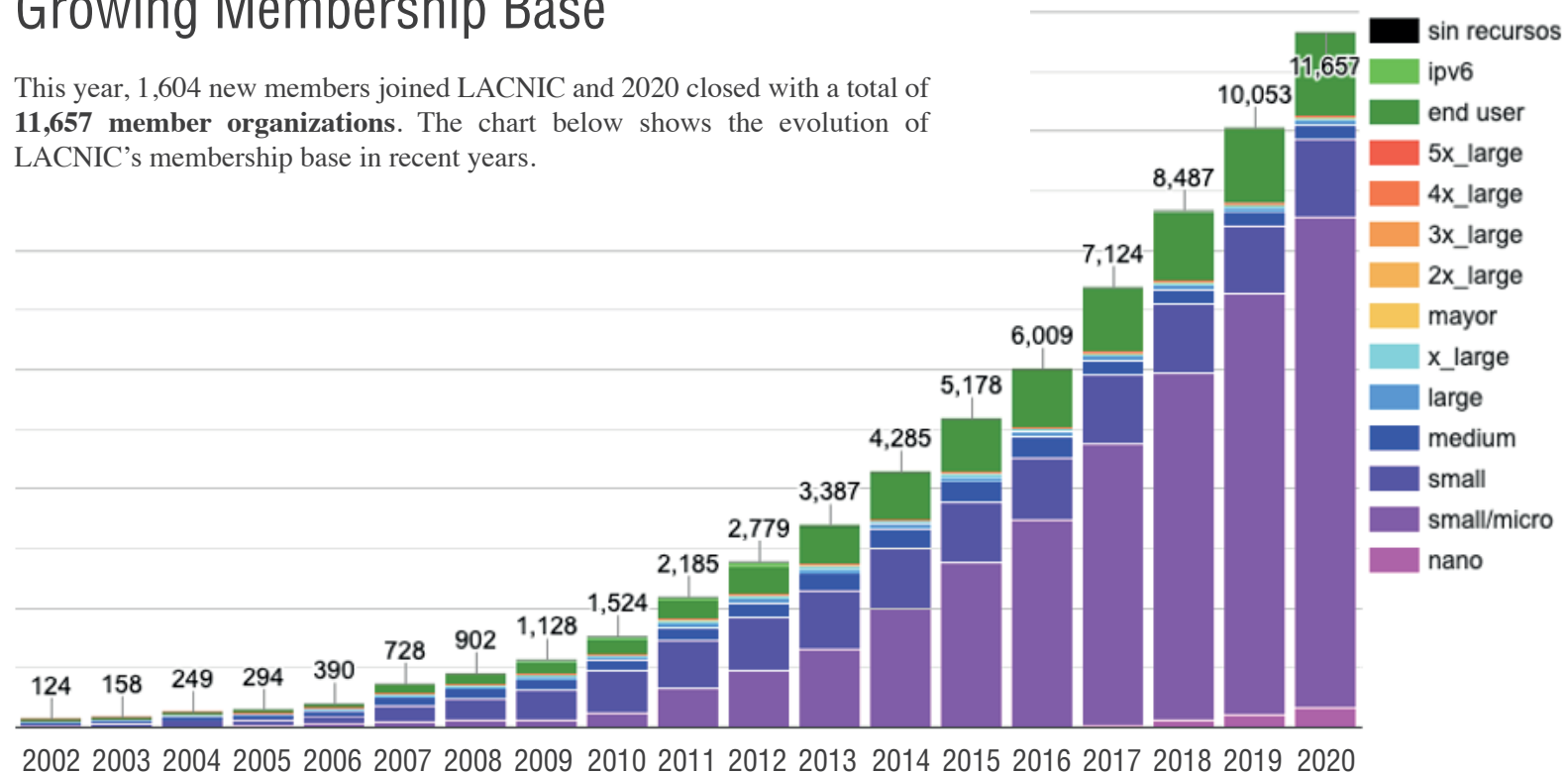
LACNIC members are divided into different categories: Active A Members, Founding Members, and Adhering Members.

[Active A Members](#) are organizations that receive IP address space directly from LACNIC, or indirectly through NIC.br or NIC.MX, the national registries for Brazil and Mexico. This category also includes a few organizations that were assigned resources by ARIN (prior to the creation of LACNIC) which are now part of the address space allocated to LACNIC and which have requested their admission as members.

Detailed information regarding membership categories and member rights and obligations can be found in LACNIC's [Bylaws](#).

Growing Membership Base

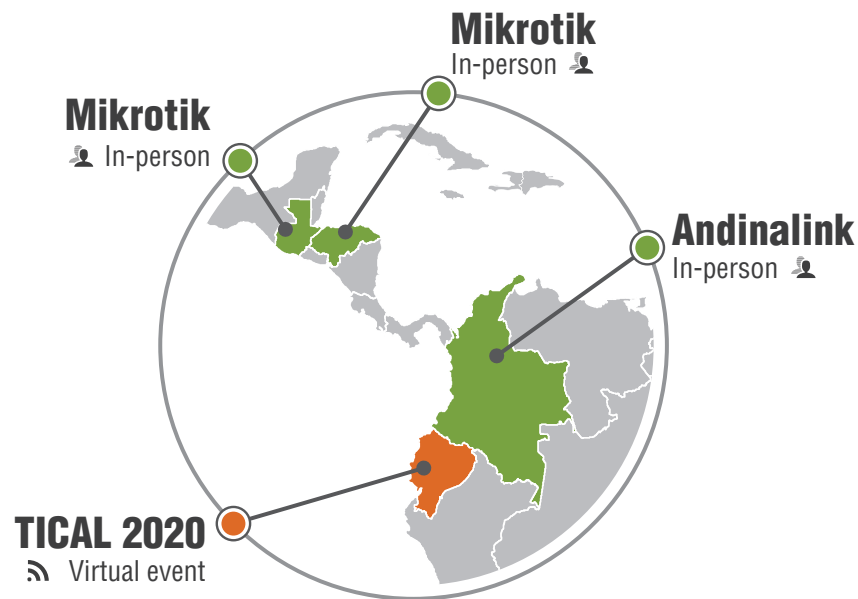
This year, 1,604 new members joined LACNIC and 2020 closed with a total of **11,657 member organizations**. The chart below shows the evolution of LACNIC's membership base in recent years.



Visiting Our Members

During the first quarter, LACNIC set up a booth at three events aimed at small Internet providers in Honduras, Guatemala, and Colombia. LACNIC also participated in the TICAL 2020 conference organized by CEDIA which was held online.

More than 2,000 persons attended these events, where the purpose of our participation was to disseminate the services offered by LACNIC and engage more directly with the region's smaller ISPs.



Satisfaction Survey

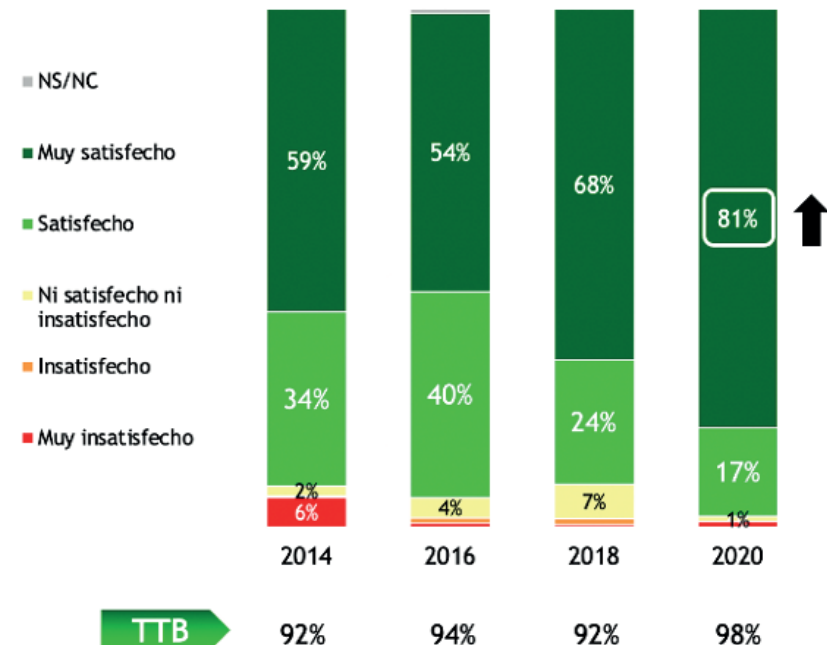
Every two years we conduct a satisfaction survey to identify the needs of our members and effectively work towards meeting these needs. Results of the 2020 survey show an **overall satisfaction level of 98%**, a record in the organization's history.

The products most used by LACNIC members were the assignment of IPv4, IPv6 and ASN resources, online training, and Mi LACNIC.

Details of this survey are available [here](#).

General satisfaction: evolution

OVERALL, how satisfied are you with LACNIC? [RU-GUI]



The LACNIC Team

Teamwork, commitment, the search for excellence, and taking care of our people are the values that identify LACNIC's organizational culture.

At LACNIC, we are convinced that success is achieved by working as a team and that everyone has something to contribute.

This year, LACNIC **placed first** in the ranking of Best Places to Work for Women in Uruguay (Small Organizations category).

This was the first time that organizations in Uruguay are recognized for their work in reducing the gap between men and women and achieving greater equality in the workplace.

In 2020 we were also included on the list of Best Places to Work in Latin America, where we ranked in **24th place** in the Small and Medium Companies category. This was the first time that Uruguayan companies have been recognized and included in this regional list.

“We strive to create a climate of respect, communication and trust,” LACNIC CEO Oscar Robles observed, “not only because it’s nice to work in this kind of environment, but also because we are committed to offering an environment that will favor the professional performance of our collaborators and thus ensure the achievement of our organizational goals.”



Highlights of 2020

LACNIC Campus Announces New Courses for 2020

LACNIC Campus, the e-learning platform created by LACNIC for the Internet community, added two new courses to its already broad training offerings. The new courses that will be offered are “IPv6 in Last-Mile and Access Networks” and “Introduction to Internet Governance in Latin America and the Caribbean.”

LACNIC Announces the Creation of Its CSIRT

After five years of successful experience with LACNIC WARP, LACNIC launched its Computer Security Incident Response Center, LACNIC CSIRT. LACNIC CSIRT will serve a target community comprised of all LACNIC member organizations.

LACNIC Technical Forum: Ten Experts, 200 Minutes and Plenty of Interaction

Close to 250 people participated in the LACNIC Technical Forum (LTF) held in May. The Forum focused on the main topics under discussion among the technical community: network operation, transitioning to IPv6, IPv6 deployment, RPKI measurements, DNSSEC, interconnection, the Internet of the Things (IoT), and security vulnerabilities.

JANUARY



MARCH



LACNIC's IRR Begins Operating

This year, LACNIC added a new service for its members and the community—the LACNIC Internet Routing Registry (IRR). The IRR is a database where operators can share their routing policies taking advantage of the authoritative information we have as an RIR.

MAY



Regional Operators Join the BGP Collector

At least seven regional operators have joined LACNIC's project to collaborate with RIPE's information service (RIPE RIS) on the status of global Internet BGP routes. We encourage operators across the region to join the project so that we can detect trends and understand routing behavior.

LACNIC Among the Best Places to Work in Latin America

Last year was the first time that Uruguay-based companies were recognized on the list of Best Places to Work in Latin America and LACNIC had the privilege of ranking in **24th place** in the Small and Medium-Sized Company category.

LACNIC Starts Processing Inter-RIR Transfers

The month of July saw the policy that allows IPv4 transfers outside the region without the need for a merger or acquisition among the companies involved come into operation.

+RAÍCES Program Supports Four New Anycast Copies in the Region

This year, LACNIC's +RAICES Program selected four new organizations to install anycast copies of the Internet's original root servers. This initiative has allowed a substantial improvement in the time required to access the original servers from most of the countries of Latin America and the Caribbean.

FRIDA Supports 17 Projects for Internet Access, Stability, Security in the Region

In line with LACNIC'S mission, FRIDA selected and supported 17 projects that contribute to Internet stability, security and access in the region. This call for proposals focused on supporting technical projects relating to the regional community and Internet operators.

JUNE



Pandemic Triggers IPv6 Use in the Region

According to data presented by LACNIC on IPv6 Day, the health emergency led to increased Internet use, which in turn triggered the deployment of IPv6. During the first three months of the COVID-19 pandemic, IPv6 traffic grew in Latin America and the Caribbean by almost 4%.

JULY



Promotion of Good Practices Drives a Drop of Route Hijacking Incidents in the Region

This year, there was a reduction in the number of route hijacks, largely thanks to the adoption of best practices to increase network resilience, the implementation and use of RPKI (resource certification) and the IRR (Internet Routing Registry).

AUGUST



IPv4 Exhaustion: LACNIC Has Assigned the Last Remaining Address Block

In August, LACNIC assigned the last available IPv4 address block. This was the culmination of the IPv4 exhaustion process which began in 2014 and was implemented in accordance with the policies defined by the community and duly reported on different opportunities.

LACNIC 34 LACNOG 2020 Online

The pandemic forced LACNIC to hold its two annual meetings online. This created major challenges that were successfully overcome on both occasions and the result was two successful events attended by more than 2,000 members of the community.

OCTOBER



Six Women Selected to Participate in LACNIC's Mentoring Program

LACNIC's IT Women project announced the first six participants selected for the first edition of its mentoring program. This initiative seeks to strengthen the professional development of women who are part of the technical Internet community of Latin America and the Caribbean, promoting their involvement in LACNIC's participation spaces.

LACNIC's Líderes Program Selects 16 Internet Governance Research Projects

LACNIC's Líderes program announced the 16 projects selected after its call for proposals for research projects on Internet Governance topics related to the Internet and the pandemic, their impacts on human rights, digital inclusion, and security and trust.

NOVEMBER



LACNIC Joins LAC-IX as a Member

The Internet Address Registry for Latin America and the Caribbean (LACNIC) announced that it is now a member of the Latin American and Caribbean Association of Internet Exchange Point Operators (LAC-IX). This alliance will allow further strengthening the region's Internet exchange points.

DECEMBER



2021

Internet Number Resource Management

Throughout 2020, the region's resource allocation process was marked by various events. Highlights include the exhaustion of IPv4 addresses which occurred in August 2020 and the implementation of a policy ratified in 2019 that allows IPv4 transfers between different Regional Registries (RIPE NCC, APNIC and ARIN).

The list below includes these and other interesting topics related to the assignment of resources in 2020.

IPv4 Exhaustion

During the first months of 2020 we prepared for IPv4 exhaustion, adapting our processes and systems to ensure compliance with the policies and to be able to maintain the levels of excellence in our interaction with applicants.

During the first half of August, the average number of assignments increased two-fold, thus accelerating the projected date of IPv4 address runout. Likewise, in August we registered 234 new members, a record number in the history of LACNIC.

As part of the adjustments, we implemented a 180-day quarantine period for recovered resources and worked with the NIRs to design how we would deal with address requests in the weeks before and after IPv4 exhaustion. Among other things, we created an IPv4 waiting list which seeks bring transparency to the process by showing the date on which a ticket is received and a prefix is approved.

Once IPv4 was exhausted, we identified that the fees for new IPv6-only members was significantly higher than they had been, so we worked on a proposal to make it easier for them to access IPv6 resources while not affecting LACNIC's financial sustainability..

In October, we presented a proposal to the board for the implementation of a waiver that will be phased out gradually over the next six years. The proposal was approved and implemented in late November. This waiver specifies that new members who only obtain IPv6 addresses (IPv6-only) will pay a discounted fee, which will be gradually increased until reaching the fee corresponding to Small, the smallest IPv6 category.

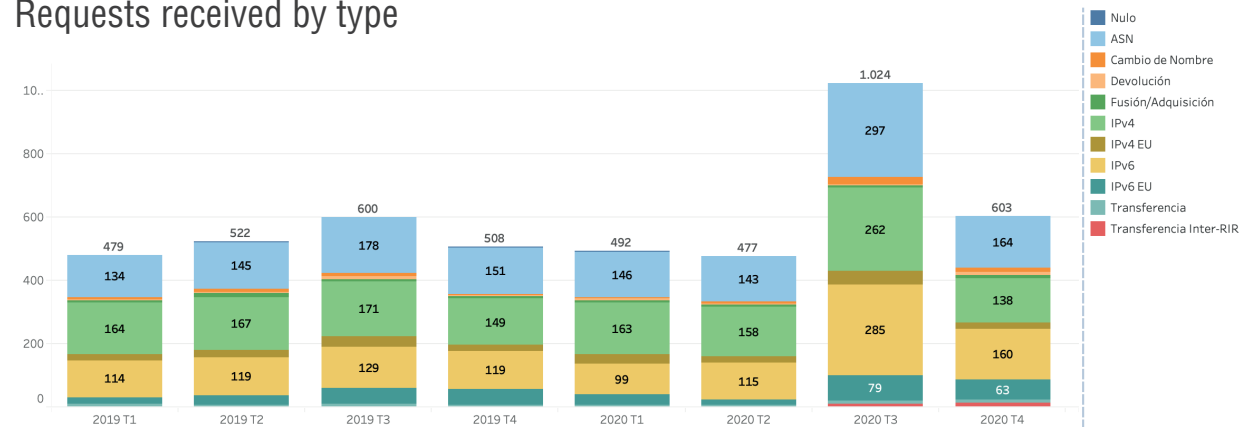
Click [here](#) for more information.

The Year in Numbers

We processed 55% more requests than in 2019

In 2020, LACNIC processed a total of 2,596 resource requests, 59% more than in 2019 (these numbers include Internet number requests, returns and transfers).

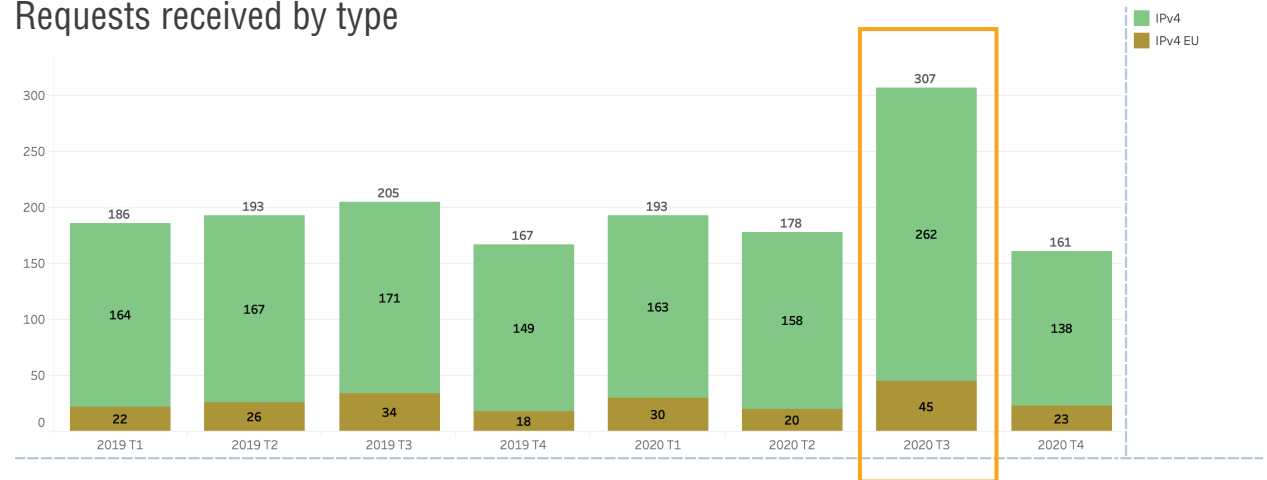
Requests received by type



Increase in the number of IPv4 requests during the third quarter of 2020

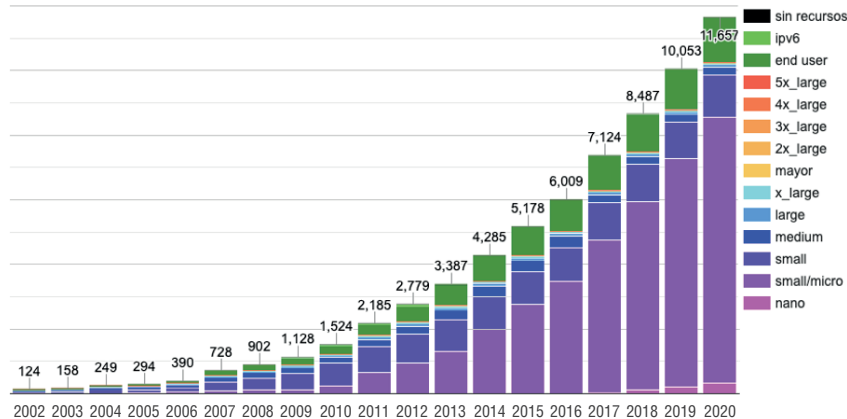
In July, we experienced a noticeable increase in the number of resource requests. The result was a **record quarter** during which we received more than **307 IPv4 requests** (a **75% increase** compared to the previous quarter).

Requests received by type



Increase in our membership base in 2020

LACNIC's membership base reached a total of 11,657 members, with 1,604 new members in 2020 (**2.4% more** than the number of new members in 2019).



Inter-RIR IPv4 Address Transfers

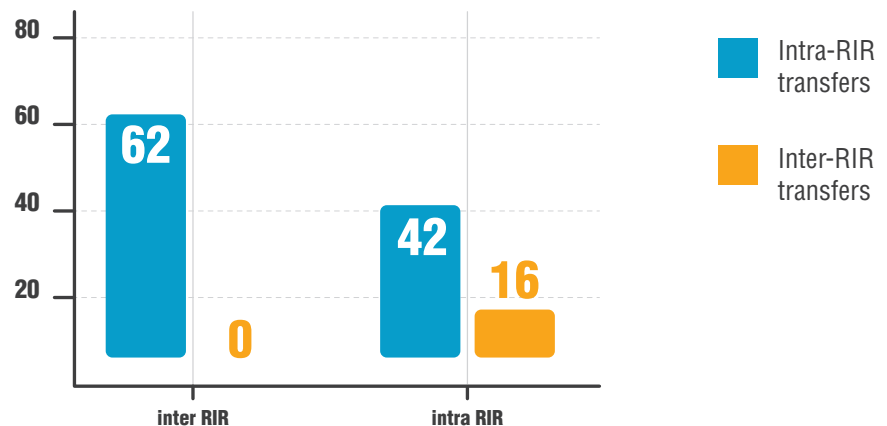
Throughout 2020, we worked in collaboration with NIC Mexico and NIC.br as well as with the other Regional Registries on the [implementation of inter-RIR transfers](#).

This policy was ratified on 20 June 2019, and its implementation represented a major technological challenge that meant the integration of various systems with multiple connections between the different Regional Internet Registries (RIRs).

Since then, it is possible to transfer IPv4 addresses between the organizations that hold resources in the regions of ARIN, APNIC, RIPE NCC and LACNIC. To do so, these organizations must meet a series of requirements. The policies that apply to LACNIC members are available [here](#).

In 2020 we completed 16 transfers. We also concluded 42 inter-RIR IPv4 address transfers.

Inter and intra RIR transfers 2019/2020

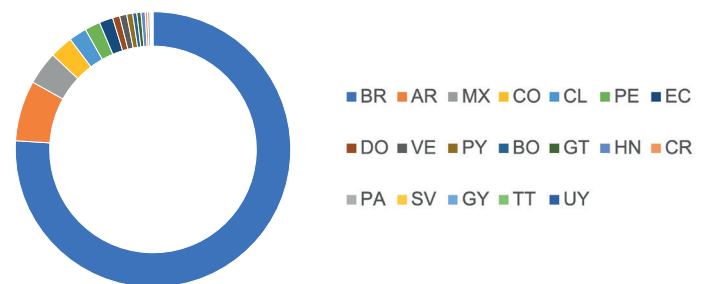


Resource Assignment Statistics for 2020

Below you will find some statistics on IPv4, IPv6 and ASN assignments in the region.

IPv4 address assignments by country

In 2020, Brazil took the highest percentage of assigned IPv4 resources (76.01%), followed far behind by Argentina (7.11%) and Mexico (3.91%).



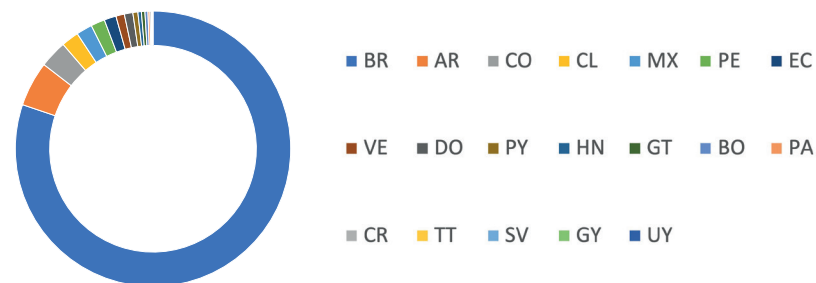
IPv6 address assignments by country

With 77.40% of the total, in 2020 Brazil also led the list of countries with the highest number of IPv6 assignments. They were followed by Colombia (5.77%) and Argentina (5.39%).



Autonomous System Number (ASN) assignments by country

Brazil and Argentina topped the list of countries with the highest number of IPv6 assignments. A total of 80.19% of assignments went to Brazil, while 5.28% and 3.22% went to Argentina and Colombia, respectively.



IPv6 address assignments by year

IPv6 assignments increased as compared to 2019. While in 2019 we completed 1,601 IPv6 assignments, in 2020 this number grew to a total of 1,801. Of these assignments, 1,660 were allocated to Internet service providers and the remaining 141 to end users.

IPv4 address assignments by year

Including NIC Mexico and NIC.br, a total of 4,960 IPv4, IPv6 and ASN assignments were completed in the region as a whole. The number of assigned IPv4 addresses totalled 1,4 million, a 4% increase compared to 2019.

Autonomous System Number (ASN) assignments by year

Autonomous system assignments also increased compared to 2019. While 1,480 ASN assignments were completed in 2019, in 2020 this number reached a total of 1,711.

The LACNIC Community

The LACNIC community is made up of more than 11,657 member organizations plus an extended community that comprises a diverse group of people and organizations with an interest in regional Internet development.

The year 2020 brought with it major challenges that led us to adapt a good part of the initiatives we normally organize for the community. The restrictions applied due to the COVID-19 pandemic forced us to test our resilience and gave us the opportunity to reinvent ourselves, keeping our community engaged even with events, training courses and other activities that took place 100% online.

LACNIC Events in 2020

Each year, LACNIC organizes two events to share technical information and promote the creation of synergies that will contribute to regional Internet development. This time, both activities maintained the original dates for which they had been scheduled but their entire content was adapted to an online format.

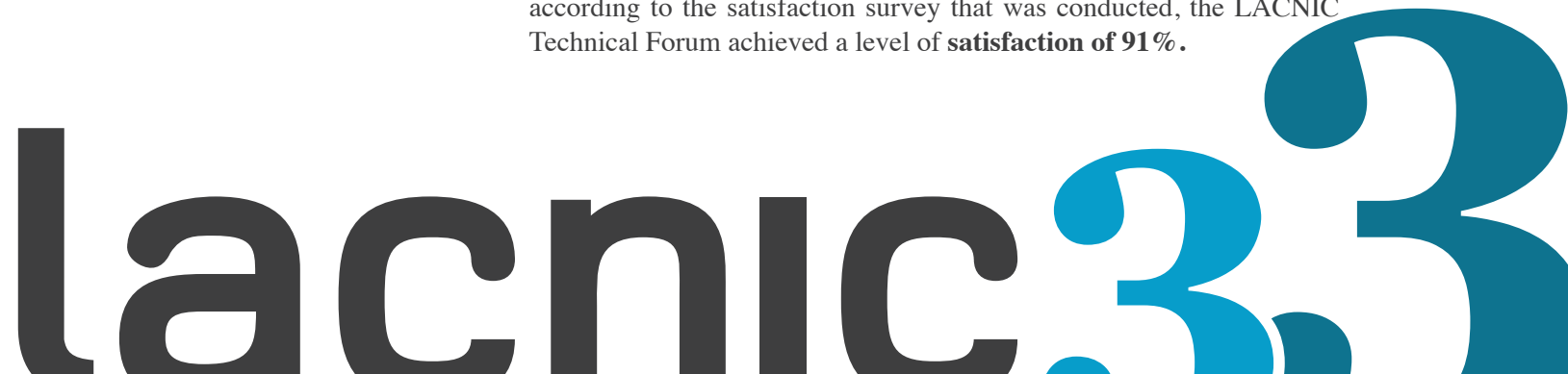
LACNIC 33 online

<https://www.lacnic.net/lacnic33>

LACNIC 33 Online was held on 4-8 May 2020. This was our first experience with an event that was 100% online and the first experience with an online event out of the five Regional Internet Registries.

We restructured the agenda and adjusted it to a shorter format to preserve the spirit of our face-to-face events and include the most important activities: various technical tutorials, the LACNIC Technical Forum (FTL), the Public Policy Forum, the LAC CSIRTs meeting, and the information session for LACNIC members and the LACNIC community.

Considering the reduction in the amount of time required by the virtual format of the Forum, the Program Committee selected nine out of the 35 proposals that were received for the FTL. The interest in increasing their technical knowledge continued to be the main reason for attending the event mentioned by those who participated in LACNIC 33. In fact, according to the satisfaction survey that was conducted, the LACNIC Technical Forum achieved a level of **satisfaction of 91%**.



lacnic33

LACNIC 33^{1/3}

Public Policy Forum

The LACNIC 33 Public Policy Forum was held online on 20 August to analyze the four policy proposals that had not been discussed during our LACNIC 33 event.

For details of the Public Policy Forum agenda, the policy proposals that were discussed, and other information, go to <https://www.lacnic.net/lacnic33-fpp>

LACNIC 34 LACNOG 2020

<https://www.lacnic.net/lacnic34>

Our second annual event was held online from 2 to 9 October together with LACNOG, which celebrated its tenth anniversary. The program included a series of technical tutorials, a keynote presentation by KC Claffy on Internet measurements, a leadership workshop, the Public Policy Forum, as well as other activities.

Likewise, LACNOG included a panel marking its tenth anniversary, as well as 17 technical presentations selected by the Program Committee.

This meeting also hosted the emotional ceremony during which Rafael 'Lito' Ibarra was presented with the 2020 Lifetime Achievement Award. In addition, a podcast was recorded with Ibarra's experience as a promoter of the collaborative Internet model.

Click [here](#) to listen to the podcast.



LACNIC on the Move

<https://onthemove.lacnic.net/lotm-elsalvador/>

On 27-28 August, we organized a LACNIC on the Move (LOTM) activity in virtual format aimed at the community of El Salvador.

LACNIC has been organizing LOTM events since 2015 for the purpose of bringing regional content and discussions closer to various national communities. At LOTM events, the Internet community, governments, and other key actors who are part of the Internet ecosystem share information, experiences, and best practices on different technical issues with the goal of promoting Internet development in their territory.

Topics discussed during this virtual meeting included IPv6 deployment with special emphasis on the progress made in El Salvador, secure routing, DNS and DNSSEC, as well as others.

Organized with the support of



Training Center

LACNIC's Training Center offers the community permanent support to help network operators, educators, regulators, and governments of the region develop their knowledge and technical skills on topics related to LACNIC's responsibilities.

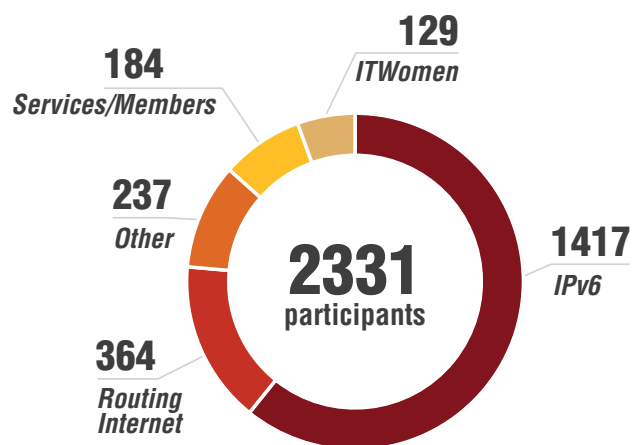
Throughout 2020, we worked to increase the number of online training opportunities on the topics most frequently requested by the community, namely, IPv6, routing, Internet governance, security, network management, and BGP-RPKI. We organized more than 14 editions of the courses through the LACNIC Campus and more than 23 webinars on various topics.

Webinars

This year we implemented internal mechanisms that allowed us to improve our user experience and consolidate the webinar service as a space for training and interacting with experts on various topics.

We also added **simultaneous interpretation into English, Spanish, and Portuguese** for most of our webinars so that everyone interested in the different topics would be able to benefit from these activities.

Participants by topic



LACNIC Campus

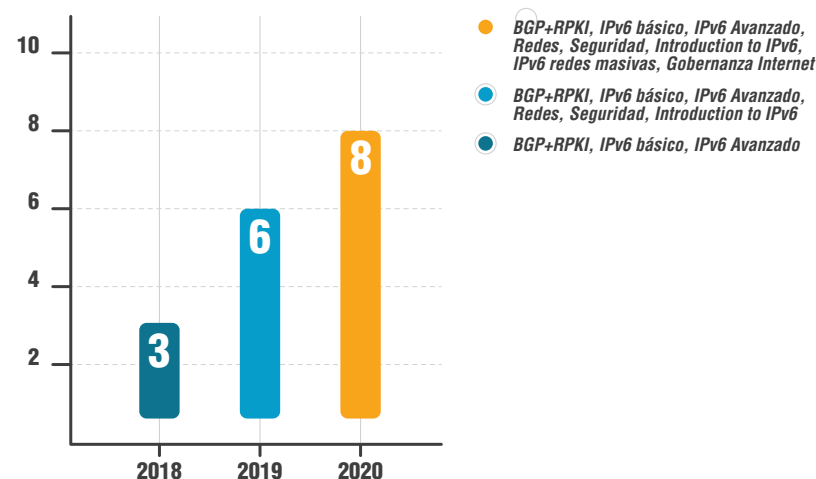
Launched in early 2015, the LACNIC Campus is an e-learning platform that allows participants to complete different courses online. The platform provides training and support to suit the needs of the Internet community and guarantee access to – and the continuity of – learning in the region.

In 2020, we added two new courses to our educational offerings, thus increasing the total number of trainings to eight. The two new courses added last year were IPv6 in Last-Mile and Access Networks (tutored) and Introduction to Internet Governance (self-paced), implemented together with ICANN and LACTLD.

This year, the CAMPUS welcomed 5,149 students, 58% of which successfully completed their courses and obtained their certificates. The majority of these students received training in IPv6 (2,682 students).

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

Evolution of the number of courses since 2018



Policy Development

LACNIC operates based on a self-regulation model according to which the rules (policies) that govern Internet resource administration are developed by the regional community through a public, participative, and transparent process that is open to anyone with an interest in Internet number related topics and built on consensus.

This year we worked hard to create an online space that would maintain the spirit of the in-person Public Policy Forum. We reduced the number of proposals to discuss at each Forum and added an additional meeting between LACNIC 33 and LACNIC 34 —the LACNIC 33 Forum— to take part of the weight off the sessions scheduled for each biannual event and provide continuity to the discussion of the proposals that had been presented.

Between LACNIC 33 and LACNIC 34, the community discussed a total of seven policy proposals. An average of 170 persons connected to these online meetings, including members of the community who were not regular participants at LACNIC's Public Policy Forum. For the LACNIC 34 Forum, we broadened the discussion space and offered a simultaneous interpretation service.

The list below shows the policy proposals that were submitted during 2020 along with their corresponding status:

Proposal	Status
LAC-2019-7: PDP Chair Election Procedure - v6	Did not reach consensus
LAC-2019-11: Eliminate the ASN Requirement for End Users - v1	Abandoned
LAC-2019-12: RPKI ROAs with Origin ASN 0 - v2	Ratified. Implementation in 2021
LAC-2019-10: Eliminate the requirement for applicants to return the addresses they have been assigned by their providers once they receive a direct assignment - v1	Abandoned
LAC-2019-8: Modification of the Time Required for a Proposal to be Presented at the Public Policy Forum - v4	Implemented
LAC-2018-13: Acceptable Use Policy (AUP) for the Policy List - v5	Did not reach consensus
LAC-2020-1: Add Operational IPv6 as a Requirement for IPv4 Transfers - v3	Did not reach consensus
LAC-2020-8: Add a Short Descriptor to Policy Proposal Identification Codes	Abandoned
LAC-2020-3: Impact Analysis Is Mandatory	Under discussion
LAC-2020-5: Adoption of policy proposals for discussion at the Public Policy Forum, Discussion List, and call for consensus as working documents	Abandoned
LAC-2020-7: Modification of the PDP to improve the quality of proposals and participation in the policy development process	Under discussion

Technical Forums

Technical forums such as LACNOG, CSIRT meetings, and the LACNIC Technical Forum are spaces for sharing knowledge and experiences that contribute to the further strengthening of the regional technical Internet community.

Just as our events and training offerings, these technical forums were held online to maintain these spaces for information sharing and discussion among the members of the regional community.

LACNIC Technical Forum

The LACNIC Technical Forum, a space for sharing and discussing Internet technologies and technical implementations, was also held in virtual format within the framework of LACNIC 33. Thirty-five presentation proposals were submitted. Given the reduced duration of the online Forum, the program committee selected [nine](#) of these presentations.

The nine presentations given at LACNIC 33 addressed topics such as RPKI and BGP, IPv6, DNSSEC, and transport networks and are available [here](#).

Along with the technical tutorials offered during the event, these presentations were the activities most highly rated by event participants.

FIRST Regional Symposium

(Forum for Incident Response and Security Teams)

Within the framework of LACNIC 34, we hosted the [FIRST Symposium](#) organized jointly with First.org with the participation of more than 80 noted specialists from countries such as Argentina, Brazil, Canada, Colombia, Ecuador, India, Japan, Mexico, Russia, and the United States.

CSIRT Meeting

The LAC-CSIRT meeting is a space created for those involved in regional computer incident response teams. In 2020, this meeting was held during LACNIC 33 Online. Professionals working with CERT.br, CSIRT CEDIA, CERT UNLP, and CSIRT BANELCO were responsible for the presentations.

LACNOG

As usual, LACNIC's second annual event was held jointly with the annual meeting of the Latin American and Caribbean Network Operators Forum, [LACNOG](#).

The program included [a panel to mark LACNOG's tenth anniversary](#) and 17 technical presentations that were very well-received by participants.

These presentations addressed topics such as RPKI, network hijacking, routing security, IPv6 to IPv6 transition mechanisms, submarine cables, and the impact of the pandemic on the Internet.

All these presentations are available [here](#).

Support for Internet Governance Spaces

LACNIC supports the strengthening of Internet governance discussion spaces or dialogues, including LACIGF and national Internet governance initiatives. Currently, many countries have established national Internet governance dialogues, each with their own local flavor.

By actively participating in these spaces, we contribute to the various discussions and to a better understanding of the multistakeholder model and the role of LACNIC.

LACIGF 13

<https://lacigf.org/lacigf-13/>

As a result of the situation caused by the pandemic, LACIGF 13 was held online on 8-10 September 2020.

The agenda and the discussions focused on the irruption of the coronavirus pandemic, which significantly affected the way in which society connects with and uses the Internet. The program was decided based on feedback provided by the community and reflected on the impact of the coronavirus on society's use of the Internet.

As notified during the 2019 event held in La Paz, in 2020 LACNIC also finalized its role as LACIGF Secretariat. This decision determines the need to seek an alternative secretariat who will be responsible for putting into operation the processes and decisions of the Program Committee or its substitute, the Multistakeholder Committee (CMPI).

The Líderes Program

<https://www.lacnic.net/4905/2/lacnic/lideres-20>

The Líderes Program supports national, regional, subregional, and youth Internet Governance Forums (NRIs) and promotes participation in LACIGF.

In response to the difficulties in holding face-to-face meetings, in 2020 the program had to generate new support strategies for these spaces and changed the program format to support small research projects by local communities focusing on Internet governance during the pandemic.

The program covered the following thematic areas: the Internet and the pandemic, its impacts and Human Rights; digital inclusion, and security and trust.

After a thorough evaluation process, [16 projects were selected as the finalists](#).



Interaction with Governments and Decision Makers

In 2020, we implemented various activities aimed at strengthening our ties with regional government authorities, generating trust and influence among decision-makers, and continuing our promotion of IPv6 deployment.

Highlights of these activities included the virtual meeting with the Superintendence of Telecommunications (SIT) of Guatemala and Chile's Undersecretary of Telecommunications (SUBTEL) for the purpose of promoting IPv6 deployment. In coordination with the Mesoamérica Project and COMTELCA, we also participated in a panel discussion on IPv6 and broadband development.

In order to continue to strengthen the relationship with the region's government authorities, we also conducted a series of webinars:

- [Good Decision-Making Practices that Favor Internet Innovation](#)
- [Strengthening Internet Governance in Latin America and the Caribbean and the Importance of Regional Involvement in These Processes.](#)
- [IPv6, the Strategy for Regional Development](#)

Participation in Telecommunications Forums and Digital Agendas

CITEL/OAS

During 2020, we participated in the two virtual meetings of Permanent Consultative Committee 1 (CCP1) of the Inter-American Telecommunications Commission (CITEL/OAS), as well as in the meetings of the Working Group for the Preparation and Follow-Up of the WTSA, the CMTI and the CMDT.

We also presented an updated document on IPv4 exhaustion and followed the proposals for the modification of ITU resolutions promoted by Member States for WTSA and WTDC, respectively.

In November, LACNIC organized a webinar titled “Innovative Models for Connecting the Unconnected” together with the Internet Society, CITEL and the ITU. The goal of this activity was to showcase alternative connectivity models such as community networks and WISPs.

eLAC

Since the beginning of the eLAC process in 2005, LACNIC has been involved in monitoring and significantly contributing to the preparation of the different editions of the Regional Digital Agenda. This space maintains its relevance, as it is the only regional space in which all the governments are present and it is open to the participation of non-government sectors, who can contribute to its definitions.

The regional political situation affected the work schedule, so in 2020 two activities —the Preparatory meeting and the Ministerial meeting— were merged and held in a virtual format. During the Ministerial meeting held in the last week of November, we participated in the high-level panel on “Productive Transformation and Skills in the Digital Age.”

Along with ICANN, LACNIC maintains its role as observer of the follow-up mechanism in representation of the technical community. In this role we articulate the contribution of the other members of the technical community to the documents under discussion.

Strengthening Internet Infrastructure

RAICES Program

<https://www.lacnic.net/1031/2/lacnic/+raices-project>

The purpose of the +RAÍCES Project is to promote the installation of anycast root server copies in countries that are part of the LACNIC service region. By installing these servers at strategic locations across the region, we seek to increase the resilience of the DNS, one of the Internet's critical resources. In doing so, we generate a better response to potential DDoS attacks or eventual infrastructure failures which might render certain root-servers inoperative.

LACNIC annually publishes a call for expressions of interest from organizations that would like to host an anycast copy of a root server. The sites that meet the requirements for hosting a root server are selected in cooperation with the root server operators (RSO) with whom we have already signed an agreement.

During 2020, we installed servers at the locations selected after the 2019 call for expressions of interest launched by the +RAÍCES Project.

RSO	Location	Organization	Role of LACNIC	In operation since
I	Santo Domingo, Ecuador	IXP Ecuador	Funding and coordination	11 Jan 2020
L	Ecuador	NAP Ecuador	Funding and coordination	27 Feb 2020
I	Concepción, Chile	PIT Chile	Funding and coordination	27 Apr 2020
I	Bolivia	Comteco	Funding and coordination	22 Sep 2020
I	México	Transtelco	Coordination	14 Oct 2020

As a result of the 2020 call for proposals (servers to be installed during 2021), the following locations were selected: Guatemala, IXP GT; Peru, PIT Peru; El Salvador, Telefónica El Salvador, and Nicaragua, CNU (the National University Council).



This map shows the location of the root server copies sponsored by LACNIC up to 2020.

Deployment of Services in IXPs

The Strengthening of Regional Internet Infrastructure project planned the deployment of services in IXPs in the hope that they will produce a cascade effect and their members will incorporate new technologies and best practices.

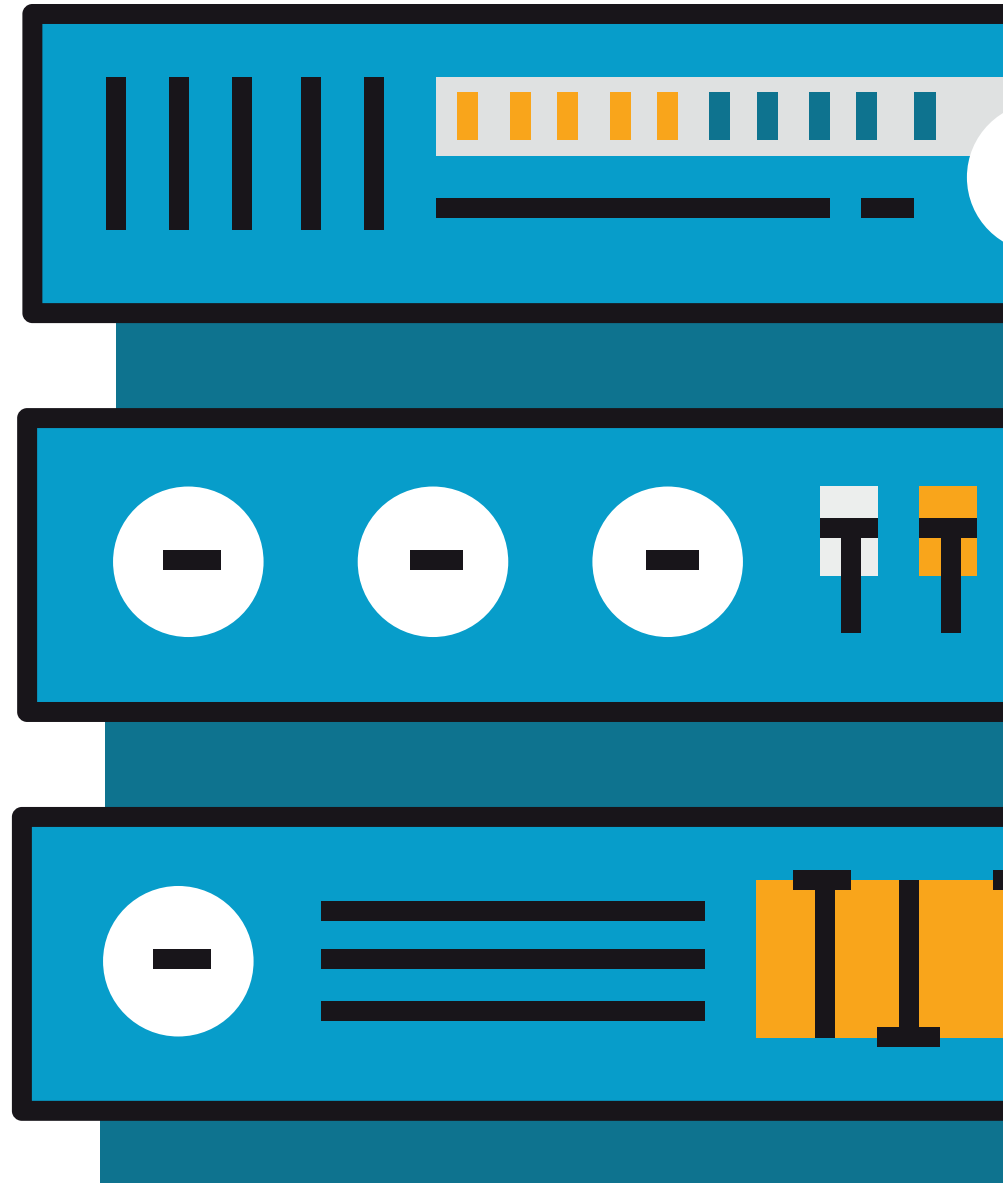
The services promoted by LACNIC include RPKI validation as well as routing security and stability through the installation of route and DNS servers. In 2020, we worked on the installation of the FORT validator and route servers at the following locations:

- Argentina, CABASE (FORT validator)
- Ecuador, IXP Ecuador (FORT validator)
- México, IXP CDMX (FORT validator and route server)
- Guatemala, IXP-GT (FORT validator, route server and other tools)
- Haití, AHTIC: still waiting for equipment to become available

During the second semester we implemented new actions that allowed us to acquire additional servers to install at three IXPs and thus promote the adoption of these services. This time, we purchased and delivered servers to the following IXPs:

- Guatemala, IXP-GT
- Dominican Republic, IXPDO
- Mexico: IXP de Yucatán, IXSY

We worked closely with LAC-IX and ICANN, two organizations that are also active at the regional level, within the framework of the collaboration agreement between the three organizations.



Promoting Cybersecurity

LACNIC CSIRT: LACNIC's Computer Security Incident Management Team

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

In 2020 we announced the creation of our CSIRT. LACNIC CSIRT was created in response to the growing demands of the technical community, the increase in the number of computer security incidents, and the maturity reached by the services previously provided by LACNIC WARP.

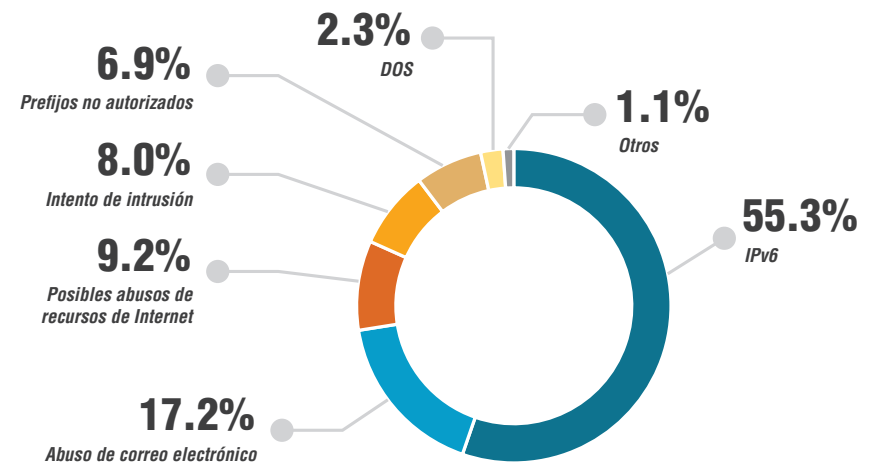
This year, LACNIC CSIRT managed more than 90 security incidents involving Internet resources under the administration of LACNIC which were reported directly to the CSIRT's inbox or via its web form.

Phishing continued to be the most reported type of incident, followed by email abuse, as email is the most popular and most effective means for various types of fraud. Internet resource abuse is third on this list.

We continued improving our sensor network. In 2020, HoneyNet added six sensors (one in Argentina, Paraguay, and El Salvador, three in Mexico), reaching a total of fourteen.

We also migrated Modern HoneyNet (MHN), the software that manages and centralizes the reception of the data generated by the sensors, to the latest version and architecture to improve interaction with users.

Incidents by category



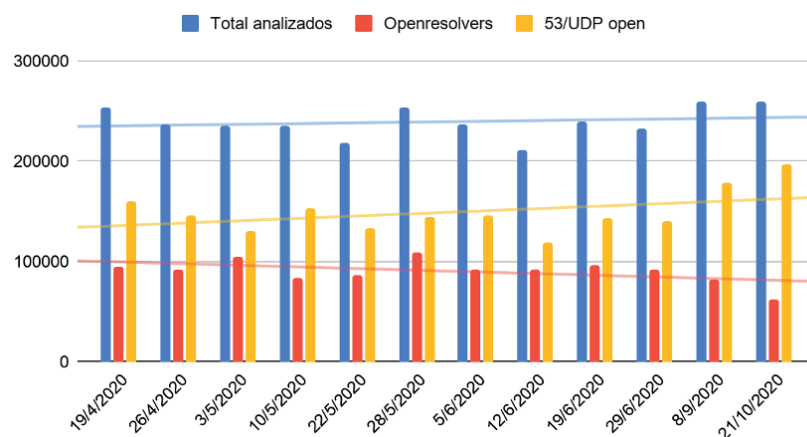
Project for Detecting DNS Open Resolvers on IPv4

In collaboration with CSIRT CEDIA (Ecuador), [we executed a project](#) for detecting recursive DNS servers that were open to the Internet. These issues were reported to the organizations involved and actions were suggested for correcting the problem and trying to reduce the number of these systems and the resulting risk of their being used as reflectors in DDoS attacks.

As the figure below shows, there was a reduction in the number of open resolvers on IPv4 following the awareness-raising and detection actions we implemented together with CSIRT CEDIA throughout the year.

The complete report is available [here](#).

Evolution of Open Resolvers in the LAC region



The red bars represent open recursive DNS servers.

Human Capacity Building in Response to Security Incidents

Although we were unable to organize any face-to-face Amparo workshops, we gave several introductory talks on the creation of a CSIRT and worked on a new edition of the Manual for the Creation of a CSIRT and Security Incident Management.

Activities for Engaging with Law Enforcement Agencies (LEAs)

During 2020, LACNIC participated in various activities aimed at strengthening our relations with law enforcement agencies in the region.

Together with the Uruguayan Agency for e-Government and the Information and Knowledge Society (AGESIC), we organized a webinar for judges, prosecutors, experts, and professionals involved in computer crime investigations.

We also created a manual to provide LEAs with the basic technical concepts necessary to obtain useful information for the investigation of computer crimes.

Promoting IPv6 Deployment

Training Activities

Promoting, strengthening, and creating awareness on the importance of IPv6 deployment are priority issues for LACNIC that crosscut all of the organization's activities.

Throughout the year, we organized six webinars on this topic, including a special activity to [celebrate the eighth anniversary of World IPv6 Launch Day](#) and IPv6 Day.

In addition to the now classic Advanced and Basic IPv6 courses (the latter in English and Spanish), the LACNIC Campus added a course on [IPv6 in Last-Mile and Access Networks](#) which will continue to be offered in 2021.

In addition, during LACNIC 33 and LACNIC 34, last year's two virtual events, we offered a tutorial on [IPv6 Network Operation](#) which was very well-received by participants.

LACNIC R+D Projects

Study on BGP Interconnection in Latin America and the Caribbean

We conducted a study on various aspects of regional interconnection to complement previous studies with additional data sources, such as global BGP routing tables and the BGP routing tables of the region's main IXPs.

This study compares the basic characteristics of how routes are published in the region, as this information will allow drawing conclusions regarding the behavior of operators when publishing their prefixes, the adoption of best practices, and other topics. Among other factors, it will also allow identifying locations where traffic is exchanged with the largest number of operators, dominant upstream providers in each country, and the average number of autonomous systems that traffic passes and its impact on regional routing stability.

The complete report has been published [here](#).

A Study of Connectivity Clusters: The Simón Project

LACNIC seeks to better understand network interconnection in Latin America and the Caribbean so that operators will have access to information that is useful for their growth strategies. This study explains how connectivity in the region of Latin America and the Caribbean is measured and how these measurements have evolved in recent years. [Click here](#) to read the full report, which is titled “Connectivity in the LAC Region in 2020.”

LACNIC's Internet Routing Registry

This year we launched the [LACNIC Internet Routing Registry](#) for members directly managed by LACNIC. This service was later extended to our members in Mexico in the month of November.

We also implemented Near-Real-Time Mirroring (NRTM) using IRRd version 4, which has allowed global IRRs such as NTT and RADB to replicate LACNIC's IRR.

As part of this task, we deployed and tested beta versions of this software to check the proper operation of the NRTM function and troubleshoot potential problems.

FORT Project

The initiative conducted in collaboration with NIC.MX and supported by the Open Technology Fund concluded during the first half of the year. This project resulted in the following developments: 1) the FORT RPKI validator, which has become one of the four top global validators; 2) FORT Monitor, a tool that allows measuring the level of protection of the routing system, the number of route hijacks, and the number of attacks on critical infrastructure, and 3) a report on the status of routing security in the LAC region. We also offered a regional training activity on the FORT Project together with the MANRS initiative.

More information: <https://fortproject.net>

Support for Open Source Initiatives

Many open source technologies are crucial to the global operation of the Internet. Following this premise, we designed an initiative to support open source projects frequently used by LACNIC and the community of Latin American and Caribbean operators. As a result, we partnered with NLNetLabs and Dashcare to support four software implementations related to routing and the DNS: Krill, Unbound, OpenDNSSEC, and Ird4.



Developing the Regional Internet Community

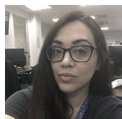
IT Women

We deployed new initiatives to continue mitigating the barriers that prevent the participation of women in technology.

Thus, we organized [four webinars](#) that were open to the public in general and focused on topics of interest to the community, yet they were particularly significant in terms of the barriers faced by women.

We also launched our [Mentoring Program](#) which seeks to encourage new generations of women in technology who have the knowledge and skills to present at technical forums. The program includes follow-up meetings with a mentor, a leader of the technical community who will help guide the work proposed by each expert in their applications, as well as two training activities to develop their soft skills.

The six women selected in this first edition of the LACNIC Mentoring Program were:



Vanessa de Oliveira Mello

Ingeniera de redes y seguridad
Brasil
Automatización de redes: Idempotencia en la configuración de un AS.

Mentor: Carlos M. Martínez



Sanie Elizabet Benitez

Ingeniera en computación
Paraguay
Habilitar nuevo ASN y Prefijos IPv4 e IPv6 y distribuirlo por red GPon.

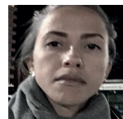
Mentor: Max Larson Henry



Maria Jesus Cresci Barrientos

Ingeniera Telemática
Uruguay
Protocolos y plataformas de software para el desarrollo efectivo de IoT.

Mentor: Marcela Orbiacay



Yisel Elena Tamayo

Ingeniera en Ciencias Informáticas
Cuba
Modelo de gestión y control de disponibilidad en la automatización de procesos de monitoreo de la infraestructura tecnológica.

Mentor: Álvaro Retana



Jacqueline Pereira da Silva

Magister en Ingeniería en Energía Eléctrica
Brasil
Implementación de la arquitectura BGP RPKI en un entorno Juniper en el ASN de la UFPB, con el fin de verificar la eficiencia en la mitigación de amenazas a la Seguridad de la Información del Sistema.

Mentor: Wanda M. Pérez



Dalia Kelly Terán Arévalo

Ingeniera en Electrónica y Telecomunicaciones
Colombia
Análisis de la seguridad en redes de información IPv6 en un entorno virtualizado.

Mentor: Nathalia Sautchuk

Last but not least, we updated the [Community Code of Conduct](#) to ensure that the organization's participation spaces will be inclusive and safe and thus favor a broad and diverse exchange of ideas.

This guide specifies standards of conduct that apply to everyone involved in LACNIC's participation spaces, including events, training activities, online forums, committees, and working groups.

The updated version of the Code incorporates elements suggested by the community working group.

1. We introduced the figure of “[trusted representatives](#)” to serve as support. Trusted representatives are staff and community members designated by the LACNIC Board who will be available to provide their support as well as information regarding the Code of Conduct. Their task will be to channel eventual complaints or address situations that occur in LACNIC's participation spaces and which that require an immediate response.
2. In addition, the [Guide for Submitting a Complaint](#) presents a series of steps that must be followed when filing a complaint before the Ethics Committee in case of a breach of the Code of Conduct. The Guide also includes a form which can be used to submit a complaint.

FRIDA Program

In 2020 we added three project lines: (a) Internet Stability and Security, (b) Open and Free Internet, and (c) Internet Access. Since 2020, the FRIDA Program has evolved and is now funded solely by LACNIC. This means that the organization independently decides which project lines will be supported.

In this cycle, more than 510 proposals were received and an independent group of experts selected [seventeen projects to receive funding, three of them in the form of awards, fourteen in the form of grants](#). The new approach has allowed us to support LACNIC's immediate community, including ccTLDs, university networks, and research teams working on domain name management, network security, IoT security, innovation in network operation through latency management techniques, and the exploration of new technologies to facilitate connectivity in remote locations.

More information: <https://programafrida.net/>



frida

Annexes

- External Auditor's Report
- Fiscal Commission's Report