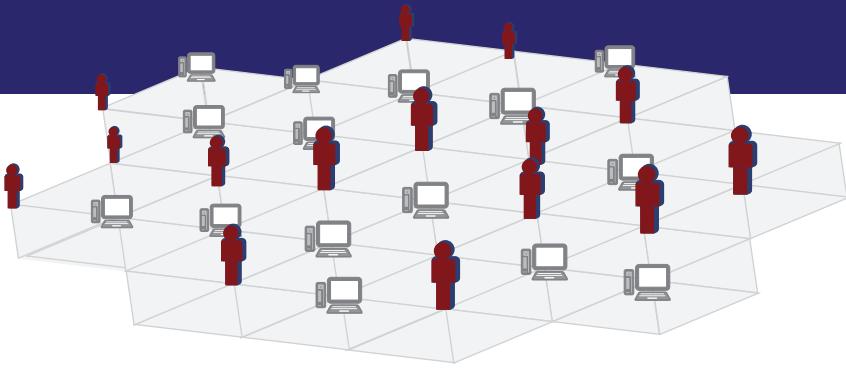




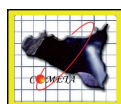
Mexico City, 27- 29 June 2012



**Grid infrastructure in Latin America
Making e-Infrastructures Sustainable**

Book of Proceedings

Proceedings of the Joint GISELA-CHAIN Conference

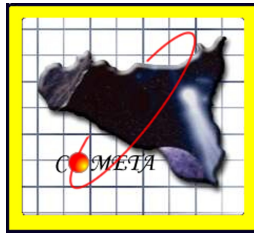


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Europe Latin America Collaborative e-Infrastructure for Research Activities: **ELCIRA**

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Abstract

The ELCIRA Project aims to coordinate a series of collaboration tools and services that are being developed in Europe and Latin America in order to provide an interoperability framework that facilitates the work of European-Latin American research teams and to foster collaboration in joint research projects. In particular, the Project seeks:

- (i) To promote the trustworthy exchange of information between research groups in Latin America and Europe by fostering the creation of federations for authentication, authorisation and identity (AAI) mechanisms.*
- (ii) To strengthen the collaboration in developing and deploying cooperation services and tools capable of better integrating the research communities of Europe and Latin America by:
 - a. Working towards the integration and operation of videoconference services for Latin America and Europe, by defining documentation and processes for agreeing on a set of standards such as addressing scheme and directory systems necessary for future interoperable services.*
 - b. Enhancing and strengthening the collaboration of Europe and Latin America in service development activities through the integration of the existing RedCLARA Portal services with TERENA's tools. The future services will be analysed and piloted as cloud services developed by, deployed by or made available within the two research and education communities.**
- (iii) To establish the necessary co-ordination and agreements to move towards better integrated mobility services for researchers by establishing the necessary*

agreements to deploy a federated eduroam service for Latin America and to establish an eduroam Exchange Point for Latin American NRENs as well as supporting the necessary dissemination activities with the NRENs in order to foster its deployment by RedCLARA's partner NRENs.

- (iv) To actively promote the participation of Latin American researchers in European Commission Calls and other international funding agencies with high impact in the region.

1. Introduction

The Latin American Cooperation of Advanced Networks (RedCLARA), is a not-for-profit organisation created in 2003 as a result of the ALICE (Latin America Interconnected with Europe) funding from the European Commission. RedCLARA brings together academic networks in the region promoting collaboration among researchers in order to enable higher levels of research and visibility by connecting the scientific community within the region and with their peers in Europe, Asia-Pacific and North America. During these years there has been a significant improvement in the connectivity among the LA countries and an important e-infrastructure is available for the regional academic communities (see Figure 1). However, the use of the e-infrastructure by several research groups is far from optimal, due to a lack of awareness, a lack of articulation between researchers and academics and the still limited capacities of the region to formulate competitive projects.

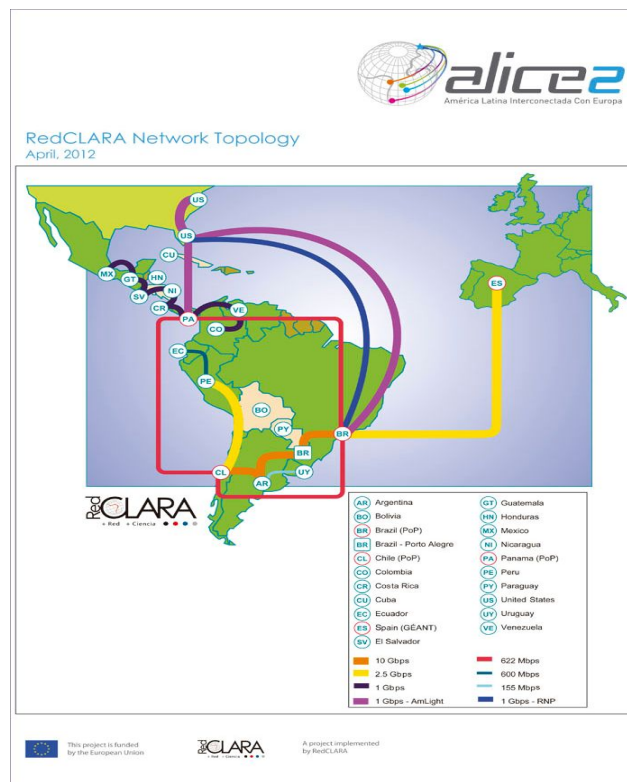


Figure 1. RedCLARA Connectivity Topology. An important e-infrastructure is available for the regional academic communities

Under this framework, RedCLARA started a roadmap to directly promote collaboration among Latin American scientists. This was done with the E-CienciAL Project: “Programme for the Promotion of the Use of Advanced Networks in Latin America for the development of Science, Technology and Innovation”, which was funded by the OAS/FEMCIDI (SEDI/AICD/AE/319/07)¹⁸. The project aimed to contribute towards the articulation of the region’s scientific community in relation to a Strategic Agenda for e-Science in Latin America. This project helped to validate the necessity of the concept of e-science in the region, identifying research groups and centres that were willing to use e-infrastructure resources in their day-to-day activities. One of the most important outcomes of e-CienciAL is a knowledge database of the research capability of Latin America. More than 800 scientists are registered in this database.

Some of these groups with research topics aligned with FP7 and MDG priorities served as a starting point for the ComCLARA Calls within the EUROPEAID-funded ALICE2 Project. ComCLARA 2010 received 32 proposals and nine of these were awarded and have successfully completed their period of activity. Recently ComCLARA 2011 received 37 proposals and nine new communities were approved, joining the renewal of the four most successful ComCLARA2010 communities. In Figure 2 it is sketched the community leader countries as well the corresponding thematic areas.

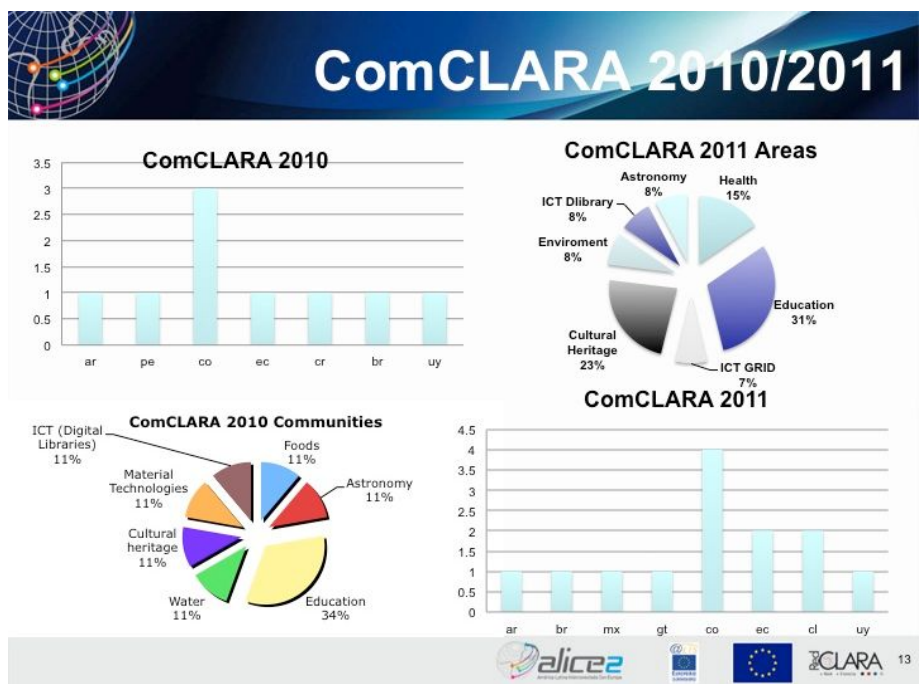


Figure 2. ComCLARA Communities. It is shown the community leader countries and the corresponding thematic areas

Supported by ALICE2¹⁹ Project and driven by the interest to support ComCLARA communities, RedCLARA has developed a portal²⁰ with a set of collaboration tools and

¹⁸ http://www.redclara.net/index.php?option=com_content&task=view&id=128&Itemid=188

¹⁹ <http://alice2.redclara.net/>

²⁰ <http://www.redclara.net>

services for their users in Latin America. These services include: Webconferencing, Event Management, Web 2.0 Tools, Video-streaming, Content Management System and a Federated Videoconference Scheduling and Coordination System called SIVIC. With the participation in important EU of projects, EELA²¹, EELA2²² and more recently GISELA²³, RedCLARA will also be in a position to offer advanced computing (Grid, Cloud, Application as service and infrastructure as service, among other) services through very simple web interfaces.

In Europe the GÉANT Community is developing a set of tools under the eduCONF²⁴ concept involving a Directory Service, a Certification Service and a European Videoconference Service. These services all require European Identity management services that are provided by the federated eduGAIN²⁵ service. It is worth mentioning that RNP (Brazil NREN) has successfully deployed a federated identity system among its academic institutions: Comunidade Acadêmica Federada (CAFe)²⁶

Also of great interest to the LA Research Community is the eduroam service that has been developed and promoted by Trans-European Research and Education Networking Association, TERENA²⁷, for a long time. In the ALICE2 Project, the Working Group on eduroam has been conducting a series of activities among technicians of the NRENs in order to train them in the deployment of eduroam and has also deployed a basic pilot. It is now time to foster the full deployment in Latin America for the benefit of both sides of the Atlantic.

Finally, tools such as the Large File Transfer application developed in the context of the TERENA TF-Storage Task Force are of great interest to Latin American researchers. RedCLARA would like to work on the agreements and protocols that may allow it to integrate that tool and other European tools to the service of Latin American Researchers.

2. Project Objectives and Goals

ELCIRA Project aims to coordinate a series of collaboration tools and services that are being developed in Europe and Latin America in order to provide an interoperability framework that facilitates the work of European-Latin American research teams and to foster collaboration in joint research projects. Some of these services will also benefit the advanced computing e-infrastructure built by EELA, EELA2 and more recently GISELA.

The objectives of ELCIRA Project are:

- I. To promote the trustworthy exchange of information between research groups in Latin America and Europe by fostering the creation of federations for authentication, authorisation and identity (AAI) mechanisms.
- II. To strengthen the collaboration in developing and deploying cooperation services and tools capable of better integrating the research communities of Europe and Latin America by:
 - a. Working towards the integration and operation of videoconference services for Latin America and Europe, by defining documentation and processes for agreeing on a set of standards to establish a common addressing scheme and

²¹ <http://www.eu-eela.org/>

²² <http://www.eu-eela.eu/>

²³ <http://www.gisela-grid.eu/>

²⁴ <http://www.geant.net/service/educonf/pages/home.aspx>

²⁵ <http://www.geant.net/service/edugain/pages/home.aspx>

²⁶ <http://www.rnp.br/servicos/caf.html>

²⁷ <http://www.terena.org/>

- directory systems necessary for future interoperable services.
- b. Enhancing and strengthening the collaboration of Europe and Latin America in service development activities, through the integration of the existing RedCLARA Portal services (Indico, Web-conference and several Web 2.0 tools) carried out within the ALICE2 project framework, with TERENA's tools such as Large File Transfer tools and related applications to facilitate the collaboration of European and Latin American researchers. The future services will be analysed and piloted as cloud services developed by, deployed by or made available within the two research communities.
- III. To establish the necessary co-ordination and agreements to move towards better integrated mobility services for researchers, thereby providing researchers with access to services and information when travelling abroad by establishing the necessary agreements to deploy a federated eduroam service for Latin America and to establish an eduroam Exchange Point for Latin American NRENs as well as supporting the necessary dissemination activities with the NRENs in order to foster the deployment of an eduroam service in the Latin American countries served by RedCLARA's partner NRENs.
 - IV. To actively promote the participation of Latin American researchers in all European Commission Calls and other international funding agencies with high impact in the region. This will be accomplished through an active dissemination of information of the European Programmes through the RedCLARA web Portal and its Alert System, the coordination of Virtual Information Days with National Contact Points and other regional organisations, as well as training activities in Proposal Preparation and Community Management skills.

3. Promoting the cooperation among the LA NRENs

The main contribution of ELCIRA stands from the fact that this project will provide a common ground to exchange experiences and develop joint capabilities in order to extend present collaborative ICT environments. ELCIRA will also establish common agreements and policies to enhance scientific cooperation between European and Latin American research communities.

ELCIRA will consider the implementation of diverse actions from different operational and conceptual planes, i.e.: technical, communicational and strategic:

- Concerning a possible future Latin American Authorization and Authentication Infrastructure (AAI), ELCIRA will transfer the technical and organisational experiences of Brazil and Europe to other countries within the region. This effort will generate definitions, standards, methodologies, and the required agreement frameworks to promote national AAI for academic services and processes. The effort will be oriented to create a common baseline of agreements and standards in order to build several services that require AAI facilities and support the global authentication infrastructure services for interfederation.
- In order to promote the collaboration between the research groups of Europe and Latin America, ELCIRA will drive specific actions to determine the scope of a future High Quality Video Conference Service (HQVCS) between Europe and Latin America. The integration of these videoconference services will be accomplished through the definition and agreement of service requirements, including operation and user support (Help Desks) as well as to determine the service architecture delivery, including web interfaces.

- Since ELCIRA puts particular attention on extending and strengthening the collaboration between Latin America and Europe, we will implement technical guidelines to deploy a common platform for both continents. As a showcase to validate the experience, ELCIRA will also implement a Pilot Service for Researchers of Europe and Latin America that allows them to collaborate within a unique platform having a single-sign-on facility instead of the actual use of ad-hoc tools to solve different problems.
- Another important aspect that will be considered within this project will be the creation of agreements to promote, coordinate and support a Latin American infrastructure for an educational roaming service (eduroam), creating this facility in two countries, establishing the bases to expand the pilot experiences to the other members of RedCLARA.
- ELCIRA contemplates, on one hand, a systematic promotion of European and other international funding agency calls in order to increase the participation of Latin American researchers. This will be achieved by reinforcing the RedCLARA Funding Alert System, and by organising InfoDays to exchange information about cooperation opportunities between Europe and Latin America. ELCIRA will also empower and promote capacity building for organising and managing virtual research communities within the Latin American region. Finally, this project will disseminate and share best practices in managing and consolidating virtual research communities by organising Thematic Days and advertising case studies of successful communities.

4. WP Organisation and NREN participation

It has been identified that one of the most urgent problems for the promotion of collaboration and collaborative research in Latin America is the lack of technological environments and tools that could be easily used to promote interaction among researchers in the region and with their peers in Europe. From this perspective, the integrated framework proposed by ELCIRA (communications & information) emerges as a very practical solution to deal with the deficiency that at the moment is only partially covered (only for Latin America) by the services and applications developed by RedCLARA within the framework of the ALICE2 Project.

The project will allow LA NRENs to exchange experiences and visions with the GÉANT Community, TERENA, the Italian Research & Education Network, GARR²⁸ and other European initiatives to develop shared knowledge and agreements on interoperability standards, norms and protocols that will help develop common tools and environments to foster the cooperation among research groups of Europe and Latin America. ELCIRA is organised around six work packages that combine the best expertise and working knowledge from both continents.

ELCIRA will be organised through 7 Work Packages with the active participation of RENATA and RNP.

WP1. Project Management and Administration – (RedCLARA). With the formation of a “Steering Committee” composed by one representative of each partner and coordinated by the Project Leader, this work package will coordinate the work of the Consortium. This committee will be responsible for high level decisions that may arise in agreements reached by the partners. The committee will meet every two months in order to monitor activities, approve changes and supervise the overall execution of the project. Each work package will

²⁸ <http://www.garr.it>

be coordinated by a leader who will also be responsible for the appropriate execution of the activities, quality control and the timely delivery of reports. Any change in planning that may imply delays to other packages will have to be approved by the Steering Committee.

WP2. Coordinated Actions for AAI between EU and LA (RNP) This package is aimed at coordinating and supporting efforts for the creation of a Latin American Authorisation and Authentication Infrastructure (AAI) and to replicate the Brazilian and European experiences in other countries of the region. The tasks to be completed by this work package will be assumed by three working groups. The first one will be responsible for generating the Action and Policy roadmap to establish national AAI organisation and federation. The second working group will be responsible for the technical deployment of showcase examples with selected institutions from two NRENS, and of their interoperability and interoperation with other Latin American federations and their European counterparts via a common interfederation service (eduGAIN). Finally, there will be the training workgroup responsible to replicate the know-how in other countries of the region.

WP3. Standards for a World Videoconference Service (RENATA) This Work Package will generate a definition and agreements in order to determine the scope of a future High Quality Video Conference Service (HQVCS) between Europe and Latin America. Lead by RENATA, this WP will organise a VideoConference Technical Task Force (VCT2F) with the participation of technical staff from RENATA, RedCLARA, the GÉANT Community and GARR. This technical team will be responsible for producing all deliverables for this WP, i.e.:

- Standards for Videoconference Dialling Systems;
- Design for digital dialling and register of gatekeepers using the Global Dialling Scheme (GDS);
- Best load distribution videoconference between Latin America and Europe;
- Service requirements, including operation, user support and web interfaces;
- Standards and strategies to deploy HQVCS;
- Technical Requirements of an exchange point HQVCS.

The idea is that the VCT2F could remain after ELCIRA and continue to generate documents that can be used as a reference by all countries in Latin America.

WP4. Promoting the deployment of eduroam services (RNP) This Work Package is also organised into three working groups in order to establish the necessary agreements to implement a federated eduroam service in Latin America, establishing eduroam exchange points in each Latin American NREN. The first working group will provide policy coordination with other regional eduroam organisations providing inter-NREN agreements for cooperation. Additionally this WP will build a roadmap for future strategies and decision-making regarding collaboration with other world regions regarding eduroam. The second working group will undertake the technical work and will deploy the required infrastructure in order to support eduroam processes in two countries and establish the bases to expand this pilot experience to the other members of RedCLARA. Finally, the third working group will design and implement a virtual course to capacitate the technical teams of NRENS in order to disseminate eduroam expertise throughout the region.

WP5. Extending and Strengthening the Collaboration Platform (RedCLARA) This work package involves the definition of policies and procedures as the basis for the

interoperability of Web collaboration platforms between GEANT and RedCLARA. The main idea is that, through cooperation between RedCLARA and the GÉANT Community, this WP can build improved services, leveraging the implementations already made by both parties. The Work Package will look at exchanging definitions and standardising protocols, tools and services in order to promote the smooth operation and deployment of collaborative research environments for communities on both continents. This includes the generation of a model to identify research service communities which will be applicable both in Latin America and Europe and the realization of a demonstrative pilot project by means of which selected identified services (provided by resources both in EU and LA) will be made available to users through single sign on.

WP6. Promotion of Participation in EU Framework Programmes (RedCLARA) This Work Package aims to increase the current participation of Latin American researchers in both the European Union programs and other international funding agencies programs. We will identify the most active research groups in both regions, strengthening and promoting cooperation among them by:

- actively disseminating the calls from the European Commission and other funding international agencies through the channels provided by the portal RedCLARA.
- scheduling regular briefings through videoconferences with the European Commission and other international funding agencies for research communities in Latin America.
- working out a technical document for the management of a transcontinental high quality videoconference service and developing online training courses to improve the skills of Latin American researchers in preparing successful collaborative projects.
- promoting the exchange of best practices for the organisation, development and consolidation of virtual research communities.

Finally, it is considered of great importance to identify facilities (instruments, databases, computing resources, etc.) that generate large amounts of data, which expects to generate study cases of these experiences and to promote new uses and users of these data, building communities of research around these facilities

WP7. Dissemination (RedCLARA) The last work package involves the development of all activities to ensure both the high visibility of the project and the proper use of the services by the research communities. The first activity considered will be to advertise and disseminate the impact of each stage of the project. One of the first actions will be to organise a launch event followed by several outreach activities as well as the production of digital and printed material. Finally, this package will include the organisation of induction mentoring for users of the services generated by the project.

5. Summary and conclusions

RedCLARA has already 7 years of experience in collaborating work between the LA NRENs among themselves and with Europe. Created by the EuropeAid funded ALICE Project, RedCLARA has successfully carried over the work done by DANTE as coordinator of the ALICE Project and since 2008 is managing the ALICE2 Project which is creating a state of the art self-sustainable research network in all the Latin American region. RedCLARA started to create its own management structure in 2005 and developed its first Strategic Plan in April of that year. That plan defined that to be sustainable, an organization like RedCLARA had to, among other things, foster the development of collaboration projects

that ensure a strong demand for regional e-infrastructures inside the LA region and at the same time strengthen the collaboration with Europe, As a result of this strategy, RedCLARA and its partners has been part of several EU funded projects like:

- EELA, EELA.2 and GISELA for the development of a Grid infrastructure;
- GLOBAL for a globalised Virtual conference system based on ISABEL Technology;
- EVALSO for the deployment of new ways of using the astronomical observatories and deploying advanced networking for ESO's Cerro Paranal Observatory;
- AugerAccess for the connectivity to the Pierre Auger Observatory;
- ELLA to study the possibility of deploying a new submarine cable infrastructure between South America and Europe;
- RedCLARA's experience is not limited to EU funded projects, other agencies have funded proposals where RedCLARA and its partners have worked in different content topics;
- Telemedicine Public Policies, funded by IDB and coordinated by RNP with RedCLARA's support;
- e-Science Policies, funded by OAS and coordinated by RedCLARA;
- Open Access Repositories, funded by IDB and coordinated by RedCLARA.

In order to deepen the work initiated during the ALICE Project, a second Strategic Project developed in 2008 lead to the proposal of ALICE2 which is currently being managed by RedCLARA and funded by EuropeAid. In this project a besides the deployment of the physical infrastructure RedCLARA is actively promoting the construction of User Communities by supporting interested research groups by providing them with information, training, management and the development of a set of collaboration tools integrated in RedCLARA's Portal. In this proposal, WP5 intends to set the basis to extend those services in a federated service involving LA and EU researchers.

The support to the dissemination of information has led to the creation of the Virtual Information Days, where the classical FP7 Virtual Days in Brussels have been extended by VC to all of Latin America connecting over 45 VC rooms in all the region, extending in this way the coverage of InfoDays and increasing LA Participation in FP7 proposals. This work will be extended in WP6.

The work on the Services Portal has been intense in the last year. RedCLARA has integrated open source tools for collaboration, like wikis, Conference Management tools, like Indico (CERN) and Webconference tools /BBB) in a tool for collaboration where today over 70 LA groups are working together in their research.

The work in the Portal is not the only activity in application development, RedCLARA's Working Groups created under the image of **TERENA**'s WGs have been creating critical mass in topics like: Ipv6, Videoconferencing, Streaming, eduroam, Security, etc. This groups are going to be the basis for the work in WPs 2 and 4.

Finally, RedCLARA has created SIVIC, a regional scheduling system for videoconferences which seems to be unique as a regional service crossing the domains of the NRENs. In WP3 we propose to set the basis for a future EU-LA interoperable VC service.

ELCIRA is promoting the collaboration among some of the most important NREN, in this case RENATA and RNP

RNP, the Brazilian NREN is the most advanced NREN in Latin America. Its work in security and authentication issues has led to .the creation of the Brazilian Federation of Certification and Authentication Federation (CAFe), the first working federation in Latin America. RNP has been extremely generous by sharing its experience with LA NRENs,

training the NREN technicians and sharing its dissemination material and experience. In WP2 RNP will lead the creation of Federations in other LA countries creating a systematic methodology to support such endeavour, coordinating with the European federations and defining models for interoperation with eduGAIN services. This will be done in tight coordination with TERENA and European initiatives. RNP is at present deploying eduroam in Brazil and integrating it into worldwide eduroam service. Its experience will be crucial to support the spread of this service across all the region. Present laboratory of eduroam run by RedCLARA's WG will be a basis to work that has been created with the strong support of RNP and Peruvian RAAP. In this project, with the support of TERENA, RNP will again lead the way for a sustained increase in the development of this service across all LA region. RNP has an extensive experience in collaboration with their peers in LA. It has been a key player in the training being provided to LA NREN technicians, in the coordination of the WGs of RedCLARA and numerous projects, like: EELA, EELA-2, RINGRID, etc.

RENATA The combination of administrative and technical staff at RENATA do a great compliment when Developing high-demand projects. Leader in the Development of IPv6 in ACIS-REDIS Colombia. Technical Committee member of RedCLARA. Dialling System Development and distribution of videoconference for RENATA network, support the project design and VNOG and SIVIC for RedCLARA Strong interest in research and Professional Development, part of select group Telecommunications Research Participate in national conferences have international and Technological Appropriation, Telecommunications and security systems. High level analytical skills in Structuring, Implementation and leadership of technology projects, and information security, teamwork and interpersonal relationship management. Hold office AIMS to enable Developing professional interest in research and growth, requiring staff and Enable Technically Demanding growth RENATA leads WP3.