



RedCLARA

Cooperación Latino Americana
de Redes Avanzadas



RedCLARA & BELLAll:

Advancing and fostering international cooperation

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Luis Eliécer Cadenas

Executive Director

RedCLARA



“
RedCLARA:
23 years
promoting the
development of
science,
technology,
education, and
innovation in
Latin America.”

About

Network Scope and Mission

RedCLARA provides a secure, high-speed backbone connecting over 2000 Latin American universities and research centers to foster science and education development with up to 100 Gbps links.

Advanced Infrastructure

It provides advanced digital infrastructure, facilitating regional and global interconnection for collaborative projects and services.

Platform for Emerging Technologies

RedCLARA acts as a testbed for AI, blockchain, cybersecurity, HPC and bioinformatics, fostering innovation and replicable infrastructure models.

International Cooperation

Acts as a neutral regional operator promoting international cooperation and sustainable development through digital transformation.



RedCLARA: Towards Digital Transformation in Latin America and the Caribbean

BELLA-S | BELLA-T | ELLA | ALICE2 |
ALICE | EVALSO | WHREN/LILA | LA-
CoNGA Physics | MAGIC | TANDEM |
ELCIRA | Strengthening NRENs |
Repositories - LA Referencia | Telesalud |
e-Ciencial | GLOBAL | CHAIN REDS |
CHAIN | GISELA | EELA-2 | EELA | RINGrid

- Since its inception in 2003, RedCLARA has participated in 22 international cooperation, computer network, and connectivity projects.
- 8 of these projects were led by RedCLARA. All of them received an excellent evaluation.
- Today, RedCLARA is part of SUBMERSE and leads BELLA II.

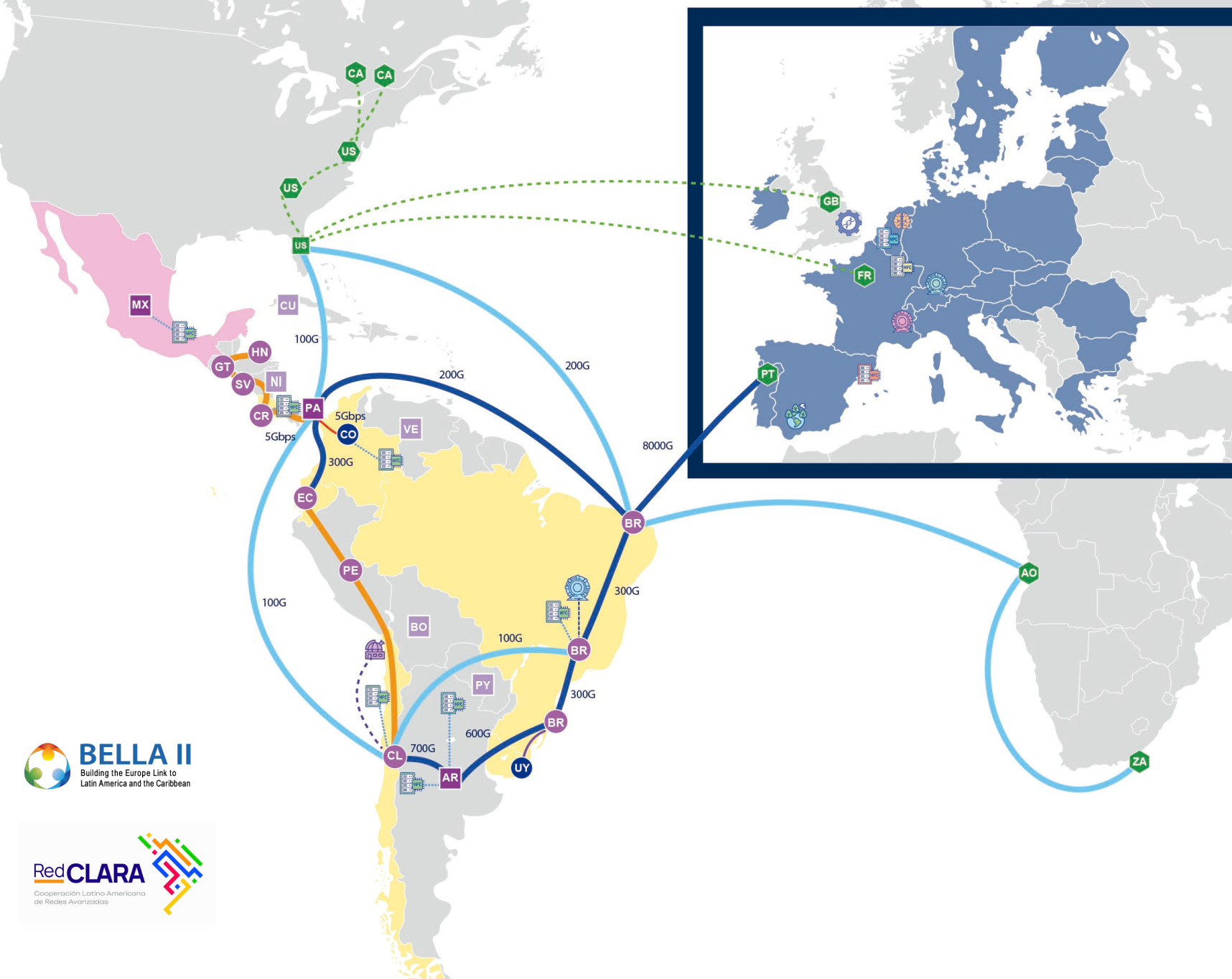
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The BELLA Programme





- N x 100 Gbps
 - 100 Gbps
 - - - L2 VLAN ≥ 10 Gbps
 - 5 Gbps
 - 500 Mbps
 - Connectivity to RedCLARA generated by BELLA II
- US RedCLARA PoP in the United States
 - NN Other countries with other academic networks
 - NN PoP in connected Latin American country
 - NN Latin American countries connected
 - NN Latin American countries not connected
 - NN PoP in not connected country
 - HPC - HPC centres that are part of SCALAC
 - HPC - The European High Performance Computing Joint Undertaking (EuroHPC JU)
 - HPC - Barcelona Supercomputing Center
 - HPC - PRACE - Partnership for Advanced Computing in Europe
 - Astronomical observatories
 - National Light Laboratory, Brazil Synchrotron
 - Hadron Collider, CERN
 - ESRF EBS - European Synchrotron Radiation Facility Extremely Brilliant Source
 - LifeWatch ERIC - e-Infrastructure for Biodiversity and Ecosystem Research
 - Instruct-ERIC - Integrated Structural Biology Infrastructure
 - EBRAINS - European Brain ReseArch INfrastructures
 - RedCLARA member countries connected to the network
 - RedCLARA member countries not connected to the network
 - In Europe, we connect to GÉANT, the European network.





BELLA II in Action: Expected Concrete Results

1

A secure and resilient optical backbone network.

2

An articulation service to connect universities, research centres, researchers, academics and businesses.

3

Testbeds service to leverage existing infrastructure to promote the creation of new solutions and innovations.

1

A secure and resilient optical backbone network:

- ✓ **Advanced connectivity for countries: initial capacity of 20 Gbps, with the possibility of increasing this depending on each country's contributions.**
- **Costa Rica is in the process of joining, working in synergy with the National Telecommunications Development Plan.**
- **Memorandum of Understanding signed with MICITT (October). Incorporation of Peru, Guatemala, El Salvador and Honduras planned.**

It will
allow

- **Dedicated, high-capacity connectivity to large research infrastructure resources.**
- **Access to supercomputing resources.**
- **High-speed connection to large data repositories.**
- **Integration into the digital research and education ecosystem interconnected by RedCLARA.**



BELLA II in Action: Advances

1

A secure and resilient optical backbone network:

- ✓ Competitive dialogues with private operators under development. May 2025 – 1st quarter 2026.
- Identification of projects and actors (RFI) with synergies with BELLA II.
- Identification of strategic partner(s) in infrastructure and a co-investment model in projects under deployment or already implemented (under development).
- Phase 2: Four (4) organisations in dialogue.

2

An articulation service to connect universities, research centres, researchers, academics and businesses.

- ✓ Promotion and active participation in bi-regional cooperation and innovation projects:
 - ✓ Europe–Latin America cooperation projects: Spider, ResInfra-Plus, CITED.
- ✓ Coordination with the Copernicus Programme:
 - ✓ Establishment of Copernicus Academies in five countries in the region.
- ✓ Innovation Hub
 - ✓ General catalogue of initiatives.
 - ✓ Ideathons, hackathons and InnovalInvest.
- ✓ Creation of coordination services:
 - ✓ Ventanilla Abierta : <https://bella-programme.eu/es/ventanilla>.
- ✓ Generation of alliances to promote scientific and digital cooperation in the region:
 - ✓ Agreements with Latin American and European governments and centres: Peru, Guatemala.
 - ✓ European centres, bi-regional projects, among others.



BELLA II in Action: Advances

3

Blockchain, Bioinformatics, and HPC testbeds services currently operating with 6 successful use cases (projects); leveraging existing infrastructure to promote the creation of new solutions and innovations.

- ✓ Cibersecurity and AI testbeds are expected to be riining by Octobre 2026.
- ✓ Real-world testing environments for open solutions.
- ✓ Controlled environments for experimentation and knowledge generation.
- ✓ Simulation of real-world conditions.
- ✓ Platforms for technology validation.
- ✓ Spaces for multidisciplinary collaboration.

BELLA II: Test Beds



- Enables complex models to be run and large volumes of data to be processed on regional infrastructure with SCALAC's support.
- Offers flexible resources and technical advice to optimise high-performance applications.

HPC



- Try blockchain solutions with no transaction fees on a state-of-the-art network that is resistant to quantum attacks.
- It offers specialised technical support in Spanish, with institutional backing from neutral entities such as RedCLARA and LNET.

Blockchain



- Identifies molecular interaction networks and model scenarios using AI to support personalised therapies.
- Allows parameters to be defined, scientific sources to be integrated, and results to be replicated accurately.

Bioinformatics



Under development

- AI
- Cibersecurity



HPC: Camarón Project

Objective: Water remediation using by-products from the shrimp production chain.

The use of the testbed reduced the execution time from 14 to 3 days.

It was determined that nanoparticles can remediate water by reducing contaminants such as lead, arsenic, ibuprofen, and diclofenac.

Blockchain: [COLMENA DAO Project](#)

Objective: strengthen beekeeping in a sustainable and inclusive way.

The project combines digital tools with community participation to track honey production, organize decision-making democratically, and economically empower women and youth in rural communities in Colombia, Peru, Ecuador, and Bolivia,.





Use cases:

Bioinformatics: Training for Genetic Regulation Network Modelling

Objective: To develop the capabilities of a group at the University of the Andes in Venezuela to model Molecular Interaction Networks through the use of Artificial Intelligence.

Ten researchers and teachers received practical training in the use of the Bioinformatics Testbed and applied it to their own work in the assisted discovery of Genetic Regulation Networks using AI.

Impacts documented to date: a significant reduction in analysis times, improved use of information from various publications, and strengthening of researchers' ability to produce results with greater scientific impact

Promoting capacity building and knowledge management in thematic areas related to Earth observation in the region. RedCLARA and its BELLA II project articulate NRENs and their institutions with organizations such as AmeriGEO, GEO, and Copernicus that have a direct impact on SDGs.

June 2022: ASREN, GÉANT and RedCLARA sign the Katowice Declaration, the largest collaboration to support Earth observation efforts

The document affirms the continued collaboration between the three regional research and education networks in the thematic area of Earth Observation. The African regional networks WACREN and UbuntuNet Alliance subsequently joined the initiative, and the Asian regional network TEIN*CC is set to join this year, giving the agreement a truly global scope..



Objectives

- Capacity building and knowledge management to enable the adoption of Copernicus data in new sectors: academic, governmental, and private.
- Encourage the development of interdisciplinary training programmes and the promotion of new competencies.
- Articulate efforts between academia, government, business, and citizens to provide solutions through Copernicus to problems related to climate change, disasters, water, and emergencies.
- Make visible successful experiences of implementing the skills and knowledge developed and acquired with Copernicus Academy to solve the region's needs.

We have
successfully
established four
academies in:

- Mexico
- Guatemala
- Costa Rica
- Uruguay

Recent Alliances



LifeWatch ERIC: MoU signed on December 2023, the agreement sets out specific lines of collaboration, such as the development of a common agenda for participation in key events, the generation of joint proposals for grants or lines of funding and reciprocal collaboration in virtual research laboratories, including access to MiLab, managed by RedCLARA, and Virtual Research Environments (VREs) developed by LifeWatch ERIC.



ENRICH LAC: Signed in the context of TICAL2025, the MoU establishes a framework designed to encourage interaction between academic, scientific, technological and business institutions in LAC and Europe. It also sets out joint actions to promote business engagement and commercial activities between Brazilian ENRICH-linked enterprises in LAC and institutions associated with RedCLARA.



When **collaboration**
meets **connection**,
knowledge becomes
development

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Contact us at RedCLARA_Comunica@redclara.net.

We are eager and ready to collaborate!

THANK'S!