



RiNP

YEAR 4
AUGUST • 2026

IN REVIEW

*Connections that
transform lives*

Documentary series with
human connections stories

*Global cooperation
drives research*

Connections mobilise the
international community

*Organisations highlight
RNP contributions*

Collaborations
span all regions

SARA BRAGANÇA
*RNP Solutions
Coordinator*

Ensuring the advancement of education and science

The Conecta Programme strengthens
Brazil's digital sovereignty

RiNP

Networked Education,
Research and Innovation

CONNECTIONS TRANSFORM LIVES

CONNECTING ORGANIZATIONS IS IMPORTANT.
UNITING PEOPLE IS **TRANSFORMATIVE**.

The RNP documentary series is an opportunity to showcase the human power that underpins the community. Check it out!



A MESSAGE FROM THE DIRECTOR GENERAL

Connected Brazil, a sovereign future

DIGITAL SOVEREIGNTY is one of Brazil's greatest challenges, while representing one of its greatest opportunities for development. In an increasingly connected world - where data, knowledge and digital technologies drive the economy, science and public services - strengthening national capacity to create, operate, and govern strategic infrastructures has become essential for Brazil's future.

In this context, RNP acts as a coordinating body to serve the public interest. For more than three decades, we have connected universities, research institutes, university hospitals, and public organisations through an advanced infrastructure that supports scientific collaboration, innovation, and digital transformation across all regions. This network increases national ability to produce knowledge, share information, and develop solutions that meet the needs of Brazilian society.

RNP's contribution to national digital sovereignty is also reflected in the provision of strategic connectivity services, cybersecurity, digital identity and collaboration, along with processing and data management. By building and strengthening skills, promoting talent development, and supporting research and innovation

projects, we help to lay the groundwork for Brazil to achieve greater technological autonomy and the ability to confront current and future challenges.

Meanwhile, we understand that sovereignty doesn't mean isolation. Science and innovation prosper through collaboration, interoperability, and the exchange of knowledge. To this end, we're working to strengthen national skills while maintaining integration with international networks and initiatives.

At RNP, we remain committed to building a safer, more resilient, and innovative digital environment, helping Brazil play an increasingly significant role in the knowledge society. ●



LISANDRO ZAMBENEDETTI
GRANVILLE
**RNP General
Director**

PHOTO CREDIT: RNP

Building digital capacity

AFTER 11 YEARS, the RNP magazine returns at a particularly significant moment for the RNP Forum. Over its timeline, the event has consolidated as the principal space of strategic dialogue for the RNP System, uniting public sector management, directors of educational and research institutions, university rectors, researchers, specialists, along with national and international partners. The forum enables stakeholders to reflect on challenges and opportunities that arise in the digital transformation of education, research, innovation, and healthcare in Brazil.

More than keeping pace with technological evolution, Brazil is currently at a decisive moment for building digital capacity which will be crucial for its scientific, technological, and social competitiveness in the coming decades.

In this context, the National Research Network (RNP in Portuguese) has expanded its relevance, consolidating a strategic national cyberinfrastructure for education, research, and innovation. Its evolution has significantly enhanced the capacity of Brazilian institutions to produce knowledge, share resources and foster innovation, while cooperating at national and international levels. Connectivity has become part of a broader ecosystem, driven by data, artificial intelligence, advanced computing, open science, cyber security, and digital services – all essential to scientific and technological development.

RNP plays a central role in the coordination of this ecosystem, bringing together government, academia, the scientific community and technology partners to strengthen national skills and expand Brazilian institutions' access to a modern, secure, resilient, and collaborative digital infrastructure. Simultaneously, RNP reinforces Brazil's integration into leading global academic networks, promoting international cooperation, knowledge exchange, and the joint development of solutions to global challenges.

The RNP Forum has kept pace with this evolution. It has transformed from a meeting with a technical management focus, into a strategic environment for collective development

where public policy, science, technology, innovation and education converge to strengthen the RNP System as a fundamental asset for national development.

The theme of this edition – Digital Sovereignty: Data, AI, and People – is an expression of this vision. More than a technology agenda, it represents a commitment to enhance skills, infrastructure, collaboration and trust, so that Brazil can expand its capacity to produce knowledge and nurture talent, while developing technologies to build its own digital future.

This new edition of RNP Magazine chronicles part of this journey, and above all, invites readers to reflect on future challenges. The experiences, projects, and initiatives presented in the following pages demonstrate that collaboration remains the RNP System's principal asset to boost Brazil's science, education, innovation, and digital transformation.

May this publication inspire new connections, strengthen partnerships, and reaffirm the conviction that investment in education, science, innovation, and collaboration is a commitment to Brazil's ability to build its own future. This is the guiding purpose of RNP: promoting the connection between people, institutions, and knowledge while generating value that benefits Brazilian society as a whole. ●

PHOTO CREDIT: RNP



ANTÔNIO CARLOS FERNANDES NUNES
RNP Director of Services and Solutions
General Coordinator of the RNP Forum

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Community is the end.

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EDITORIAL TEAM

RNP IN REVIEW

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General Director: Lisandro
Zambenedetti Granville

Project Manager: Stela Tsirakis Toti

Project Coordinator: Fábio Cazes

Collaboration and review: Ana Carolina
Landi | Lázaro Mendes | Leonie Gouveia
| Milena Almeida | Fillipo Pereira

Editing: Henrique Gimenes |
Mayra Almeida | Lúcio Santos

Graphic design and layout:
Andréa Miranda

Art supervision: Jaime Sousa

Printing: Gráfica Movimento

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Executive production: Lúcio Santos
| Raphael Gomide | Corcovado
Comunicação Estratégica

Translation: Sarah O'Sullivan
| SOS Education

Cover photo: Lázaro Mendes

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Watch the series



1 João Victor and his mother in the small town of Arari (MA); 2 Professor Luciano Gaspary with student Bruno Bastos: solidarity; 3 Farmer Jamil Corinto and Cynthia Torres, from Embrapa: a connection between agriculture and technology

Technology is the means. Community is the end.

The true strength of RNP is not in its infrastructure, but in the people who underpin its existence.



FRAMES FROM THE SERIES 'CONECTAR E TRANSFORMAR VIDAS', PRODUCED BY RNP

160 KM SEPARATES ARARI, in Maranhão, from the state capital, São Luís. It is a 3.5-hour journey that, far more than connecting two points on a map, marked a future path for João Victor Gonçalves who left home to study Computer Science at the Federal University of Maranhão (UFMA). When he received the invitation to participate in a research project on TV 3.0, he had no idea where the opportunity might lead him. 'Is this actually going anywhere?' he thought. The initial motivation was the scholarship offered.

Not only did it take off, but it changed his life. Upon starting his scientific initiation programme, he joined a group of researchers, government representatives, and

industry leaders, and even presented a project at the Ministry of Communications in Brasília. Today, João serves as a reference point for other students.

He is featured in the series, *Conectar e Transformar Vidas* (Connecting and Transforming Lives), which shows the realities of a Brazil transformed by the relationships born within the academic environment. Available on YouTube and the organisation's social media channels, the three-part documentary series tells real stories of human connections forged in educational, research and innovation settings - connections which form lifelong bonds of support and transformation.

Solidarity that resisted during flooding

Yuri Vargas will never forget the network of solidarity which embraced him after the flood in southern Brazil in 2024. A Computer Engineering student at the Federal University of Rio Grande do Sul (UFRGS), he and his family spent five days isolated on the unfinished upper floor of their house, which had been inundated with water. "It looked like a scene from a war film."

At that time, Luciano Gaspary, then vice director of UFRGS's Institute of Informatics, mobilised the academic community to help those who needed it. "When the technology and connectivity network went down, the human network resisted." He also helped Bruno Bastos to rebuild his mother-in-law's restaurant, the family's only source of income. One year later, Yuri, Bruno, and Gaspary's emotional reunion was captured on film. "What touched me most was seeing the Institute's community coming together. I felt a real sense of belonging," says Bruno.

Technology for family farming

There is no shortage of emotion in the life of Jamil Corinto, a family farmer from Catalão (GO). With agroecological knowledge and an innovative creativity in agriculture, he gave it all up after the death of his son in an accident. The agricultural work of Jamil and his wife gains renewed motivation, when, in the third episode, he reunites with Cynthia Torrites and Altair Toledo, researchers from *Embrapa Cerrados* with whom he collaborated for more than 20 years.

The connectivity combined Jamil's practical experience with Embrapa's scientific know-how. He exchanges information with researchers from a distance, and receives guidance that enables him to incorporate solutions into his work. "The internet has helped a lot, because whatever you want to learn is right there for you."

The stories of João, Yuri, Bruno and Jamil show how connections made - in education, in research, and in innovation - evolve into links of support, collaboration, and change. They reflect the strength of community which drives RNP: A technology network, but more importantly, a network of people. ●

"Governance needs to be built on listening"

For **LISE FUHR**, CEO of GÉANT, the Pan-European Network for Research and Education, Europe needs to advance the construction of its digital sovereignty without weakening its international scientific cooperation. In an interview with RNP in Review, she highlights how academic and research networks are strategic assets to drive science and innovation. The Danish executive believes that GÉANT's main value goes beyond technological infrastructure and can be found in its capacity to mobilise a solid collaboration community. Fuhr also supports more active participation by these networks in discussions about internet governance and the strengthening of partnerships with international organisations.

RNP IN REVIEW: From your perspective, how would you describe the current state of National Research and Education Networks (NRENs) globally? What are today's principal strategic risks?

LISE FUHR: What we're doing is unique: We offer a high-quality, extremely resilient infrastructure. However, if we simply rely on the results that we've already achieved, we run the risk of falling behind the pace of technological evolution. At the same time, the global political landscape has become increasingly fragmented and marked by rising distrust among nations.

RNP: Many countries talk about digital sovereignty and strategic autonomy. How can networks reconcile these priorities with international scientific collaboration?

L. F.: We thrive through strong global collaboration, but we cannot ignore the growing demands for digital sovereignty and strategic autonomy. These two objectives can coexist as long as there is balance. In Europe, there is a movement to prioritise equipment produced in the continent. This directive is embedded in our 2026-2030 Strategy, which projects the development of our network as a secure, resilient, and sovereign pan-European infrastructure.



PHOTO CREDIT: GÉANT

For the complete interview, see the RNP website



"Because we are a single community, investing in GÉANT multiplies the impact of investment."

RNP: Europe built one of the world's most advanced ecosystems through GÉANT. What lessons from the European experience can be useful for other regions?

L. F.: One of GÉANT's major successes has been to build a network based on trust and to form a solid community. Technology is one of the pillars of our work, but what truly strengthens GÉANT are its members - the trust and spirit of collaboration which we've built over the years. This is our biggest strength: the human network.

RNP: GÉANT operates within a highly collaborative framework. What example of leadership and governance emerge from such a distributed international organisation?

L. F.: When I arrived at GÉANT, one of the first things that drew my attention was the strength of its community of NRENs. A large part of our success has been down to respecting diversity, quality of communication, and a genuinely inclusive culture. In a distributed organisation like ours, governance needs to be built, first and foremost, on listening.

RNP: How do you see the future financial sustainability of the networks in Europe?

L. F.: Financial sustainability starts with an understanding of the requirements

of the teaching and research community, and not just the 27 member states of the European Union. My message to policymakers is this: because we are a unique community, investing in GÉANT multiplies its impact.

RNP: Emerging technologies are placing new demands on networks. How should they adapt their infrastructure and their services to address these demands?

L. F.: We're investing in areas like time and frequency services and enhancing federal infrastructure models such as those developed by the project EuroHPC Hyperconnectivity. We don't need to be pioneers on all fronts. Instead, we can closely monitor technological advances on a global level. It's also fundamental to establish strategic alliances with organisations operating in these emerging fields.

RNP: Collaboration between networks and large global cloud service providers is increasing. How do you interpret this evolution?

L. F.: We need to be attentive to what it represents. I see a growing dependency on commercial digital platforms driven by the growing demand for cloud services. In Europe, there's a movement in favour of solutions developed on the continent. In this context, the success of the OCRE 2024 programme is especially relevant because it enables institutions to procure European solutions as much as large global cloud providers (hyperscalers).

RNP: Looking toward the next decade, what should the networks do to remain essential infrastructure for science, education, and innovation?

L. F.: We need to continue to listen to the needs of the community for teaching and research and closely follow political developments, without giving up strong international collaboration or knowledge exchange and best practice. What makes us unique are our members and our ability to connect through a high-quality infrastructure - across countries from Ireland to Ukraine, from Finland to Greece - offering elevated levels of skills, performance, and security. ●

"Contemporary science is collaborative by definition"

In an interview with RNP in Revista, **LUIS ELIÉCER CADENAS**, executive director of RedCLARA (Latin-American Cooperation for Advanced Networks), argues that academic networks need to go beyond connectivity. They need to constitute a digital ecosystem for open science, offering high-performance computing, storage and sharing of scientific data, artificial intelligence and international collaboration. The Venezuelan computer engineer adds that academic connectivity should be treated as a strategic infrastructure, comparable to energy and water supply systems.

RNP IN REVIEW: RedCLARA has been a key component for the digital integration of the Latin American academic community. How do you view the strategic role of the regional network in Latin America's scientific and technological development?

LUIS ELIÉCER CADENAS: RedCLARA's main strategic goal is to promote and facilitate cooperation between national networks for teaching and research in Latin America and the Caribbean. RedCLARA has a significant international connectivity infrastructure which functions as a digital platform to enable this cooperation. Another fundamentally important aspect is the coordination of initiatives and projects aimed at the creation of a shared data platform. Contemporary science is collaborative by definition. It depends on the transfer of large volumes of data, remote access to scientific tools, computer resources and artificial intelligence, and cooperation between institutions in different countries.

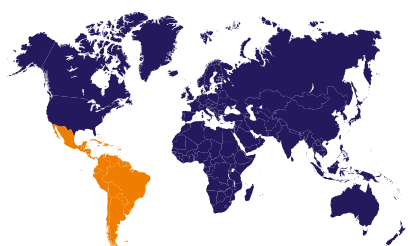
RNP: What value does the connection to RedCLARA offer to the region's National Research and Education Networks (NRENs) and their academic communities?

L. E. C.: National networks represent the expression of a need among universities and research centres for collaboration with each other and with other organisations on a global level. RedCLARA physically connects these

PHOTO CREDIT: REDCLARA



LUIS ELIÉCER CADENAS
executive director of RedCLARA



networks internationally, and through this integration, permits access to resources and capabilities with global reach.

RNP: What are the main challenges to strengthening Latin America's academic networks?

L. E. C.: Economic and social inequality in Latin America is the main cause of difficulties in national networks. The existence of a national network depends, above all, on buy-in from governments, universities, and research centres regarding the impact that it can have on scientific and technological development.

RNP: In some countries, networks have had periods of weakening. What factors can explain this and what strategies could reverse the trend?

L. E. C.: There remains a lot of work to be done to demonstrate the value of these organisations to countries. The main challenge faced is the shortage of resources. Once more, cooperation can and should be part of the solution. We need to build, jointly, an operating model for RedCLARA that guarantees its sustainability.

RNP: There are still countries whose national networks are not fully connected to RedCLARA. What are the main barriers to this integration?

L. E. C.: These barriers stem from a combination of factors related to costs, information availability, and institutional organisation. In some countries, the cost of international

links remains high; in others, there is still no consolidated national network that coordinates universities and serves as a counterpart to RedCLARA.

RNP: Science depends on advanced digital infrastructures and the circulation of large volumes of data. How is RedCLARA responding to these new demands?

L. E. C.: RedCLARA evolves on two fronts. The first is the expansion of the capacity of its infrastructure. However, the more profound transformation is occurring in the field of services. Our strategic plan for 2026 to 2030 is for RedCLARA to also become a service environment capable of attending to the needs of data-intensive science.

RNP: RedCLARA performs a role in the connection with other networks such as GÉANT in Europe and Internet2 in the USA. What is the importance of this global dimension?

L. E. C.: Frontier science is global. Interconnection with GÉANT in Europe, Internet2 in the US, and other academic networks enables Latin American researchers to collaborate with peers on any continent through equal-quality infrastructure, participate in major projects, and have access to scientific facilities and databases with global reach.

RNP: What message would you like to convey to those responsible for public policy and to university directors about academic networks?

L. E. C.: Investing in academic networks is an investment in Latin America's capacity to produce knowledge. To those responsible for public policy, I would say that it's fundamental to understand connectivity focused on research and education for what it really is: a critical long-term infrastructure, comparable to energy or water supply systems. To university leaders, I would highlight how the network is a shared public resource which is strengthened by every participating institution. ●

For the complete interview, see the RNP website



"The primary strategic role of RedCLARA is to promote and facilitate cooperation between national teaching and research networks in Latin America and the Caribbean."

"The priority is to offer high performance connectivity"

Operating for more than three decades, the China Education and Research Network (CERNET) has become one of the largest and most advanced academic networks in the world, connecting more than three thousand universities and research institutions. In this interview with RNP in Review, **JIE AN**, CEO of CERNET, headquartered at Tsinghua University, highlights how support from the Chinese government boosted its growth, presents the network's priorities in artificial intelligence, advanced computing and IPv6, and underlines international cooperation as a base for the advancement of science.

RNP IN REVIEW: How does government support influence the development of the priorities of education and research networks in China?

JIE AN: Strong public policy support and continued investment have been instrumental in CERNET's development. The first generation of the backbone network was launched in 1994. Nowadays, it connects more than three thousand universities and research institutions, serving more than fifty million users. In 2004, CERNET implemented CERNET2, the first national backbone network based exclusively on IPv6, connecting around two thousand universities. By 2021, CERNET completed the Future Internet Technology Infrastructure (FITI), also known as CERNET3. Interconnecting 31 central nodes via 200 Gb/s, FITI functions as an open experimental platform for research, tests, and innovation in future internet architectures and technologies.

RNP: How would you describe the network's current stage of development and what are its strategic priorities?

J.A.: CERNET's priority is to continue strengthening its network infrastructure to provide the high-performance connectivity necessary for education, research, and computing driven by new technologies. In 2023, CERNET launched an ultra-high-speed experimental backbone network of 1.2 Tb/s, connecting Peking, Wuhan, and Guangzhou - the world's first internet backbone network to operate at this capacity.

RNP: What lessons from CERNET's experience can be relevant for other national research and education networks?

J.A.: CERNET built a practical pathway for the transition to IPv6 by operating two large production networks in parallel: CERNET, based on IPv4, and CERNET2, native to IPv6. During this process, CERNET contributed to the Internet Engineering Task Force (IETF)'s standardisation efforts on IPv4-to-IPv6 transition technologies, culminating in the publication of the IVI mechanism for IPv4/IPv6 translation as a series of IETF Requests for Comments (RFCs).

RNP: International cooperation has always been a central element. How do you see the future of collaboration between CERNET and other networks?

J.A.: CERNET has continuously promoted connectivity and cooperation among national networks for research and education (NRENs) in the Asia-Pacific region, Europe, North America, and other parts of the world. CERNET hopes to deepen its collaboration with networks across the world.

For the complete interview, see the RNP website



JIE AN
CEO of CERNET



PHOTO CREDIT: CERNET

RNP: What role can research and education networks play in maintaining channels for global scientific collaboration?

J.A.: Scientific progress has always been driven by openness, by collaboration, and the free exchange of knowledge. Whether in education, in basic research, in climate change, in public health, or in emerging areas such as artificial intelligence, international cooperation continues to be essential to address many of today's most urgent challenges.

RNP: What are the principal factors of governance and financing which permit CERNET to grow and maintain long-term sustainability?

J.A.: CERNET coordinates a national research consortium made up of leading universities. This collaborative network is responsible for the planning, architecture, and technological research and development of the CERNET, CERNET2 and CERNET3 backbone networks. CERNET Corporation acts as the entity responsible for the commercial operations of the network, providing the fibre optic infrastructure and assuming operational, maintenance, and service activities.

RNP: Looking to the next decade, what are the biggest challenges and opportunities for national research and education networks globally?

J.A.: National networks are expected not only to keep pace with successive waves of technological innovation, but also to navigate growing geopolitical uncertainties and an increasingly fragmented digital landscape. As an old Chinese proverb says: "Where there is a will, there is a way." I believe that, with a shared commitment to openness, collaboration, and mutual trust, the global community of NRENs will continue to overcome challenges, taking advantage of new opportunities, and contributing to a more promising future for science, for education, and for society as a whole. ●

“International cooperation continues to be essential to address many of today's most urgent challenges.”



Conecta expands academic community's access to digital services

Initiative democratises infrastructure, enabling new services for research, education, and Information and Communications Technology (ICT)

ENSURING THAT RESEARCHERS

across Brazil have equal access to technological opportunities is the mission of the *Conecta* Programme. The Ministry of Science, Technology and Innovation (MCTI) initiative, coordinated and executed by RNP, is expanding Brazil's digital infrastructure and strengthening the national ecosystem of education, science, technology and innovation.

Created in 2023, the programme is built on five strategic pillars: expansion of the Ipê network; development of information highways and metropolitan networks; implementation of the e-Science Network; structuring of National Data Centres (CNDs); and strengthening

The *Conecta* Programme enables researchers from different regions of the country to participate in cutting-edge projects

of Security Operations Centres (SOCs).

According to Antônio Carlos Fernandes Nunes, Director of Services and Solutions at RNP, "the democratisation of digital infrastructure is an essential condition for Brazilian science to advance in a more balanced way." For him, "scientific production increasingly depends on the ability to connect people, share large volumes of data, use artificial intelligence, access advanced computational environments, and to collaborate internationally."

In this context, CNDs constitute a strategic infrastructure for the storage, processing, and secure management of data, while enabling digital service offerings. These services will benefit researchers, with advanced environments for intensive data science and artificial intelligence; students, with access to the computational resources and new teaching and learning experiences; and ICT managers, with more secure, scalable, and efficient solutions to support the digital transformation of institutions.

Conecta allows researchers from different regions to participate in cutting-edge projects in AI, health, climate, agriculture, energy, biodiversity, and open science. In practice, it means that a university in the interior of the Amazon region, a federal institute in the semi-arid northeast, or a university hospital in Brazil's central eastern region will be able to access the same digital ecosystem used by the largest Brazilian universities and by the main international research centres, with benefits that will also reach students, professors and teams responsible for managing institutional technology.

Sovereignty

The contribution of the programme to elevating the competitiveness of Brazilian science is undeniable. "Modern science is increasingly based on international collaboration and on data. Projects - in areas such as genomics, climate change, astronomy, particle physics, digital health, artificial intelligence, and biodiversity - circulate massive volumes of information on a daily basis. Without compatible



“Scientific production increasingly depends on the ability to connect people.”

ANTÔNIO CARLOS FERNANDES NUNES
Director of Services and Solutions at RNP

digital infrastructure, Brazilian researchers are naturally excluded.”

Nunes further adds that the programme strengthens Brazil's digital sovereignty, allowing strategic scientific data to remain under national governance, while being shared internationally when appropriate. By integrating advanced connectivity, CNDs, the e-Science Network and SOCs, *Conecta* establishes a secure and sustainable platform for the development of new offerings of storage, processing, artificial intelligence, collaboration and protection of data, expanding the benefits of infrastructure for research, education, and ICT management in Brazilian institutions. ●

Next steps to expand Conecta's regional footprint

Ceará's CND is a strategic project and will expand digital capabilities in Brazil's Northeast

NATIONAL DATA CENTRES (CNDs) integrate a distributed national infrastructure architecture for scientific data. After the establishment of CNDs in São Paulo and Brasília, it was the Northeast's turn. "Ceará's CND is one of the most strategic deliveries of the Conecta Programme and remains a priority", explains Antônio Carlos Fernandes Nunes, Director of Services and Solutions of the National Research Network (RNP).

In partnership with V.tal, the new CND will be launched in the second semester of 2026. According to Nunes, the Northeast region concentrates highly qualified federal institutes, university hospitals, and research centres that have significantly increased their scientific output.

The role of the CND Ceará (CND-CE) will be to bring together and expand the storage, processing, security, and advanced digital services capabilities of institutions in the region - which previously depended on infrastructure concentrated in other parts of the country.

CND-CE also represents another step towards reducing regional inequality. "The Conecta Programme directly addresses this challenge, through the inland expansion of the Ipê Network, the implementation of state infoways, the strengthening of PoPs (RNP Points of Presence), metropolitan networks, National Data Centers (CNDs), and distributed Security Operations Centers (SOCs). This means that institutions in previously underserved regions now gain access to digital services with performance levels comparable to



CNDs in Brasília (1), Ceará (2) and São Paulo (3) form part of a national infrastructure architecture for scientific data

PHOTO CREDIT: LAZARO MENDES/RNP AND RNP

“Institutions in previously underserved regions now gain access to digital services with performance levels comparable to those found in major urban centres.”

those found in major urban centres,” explains Nunes.

The RNP Director highlights four milestones for 2026: the advancement of CNDs; the selection of new Science and Technology Institutes for the e-Science Network; the expansion of the distributed SOCs strategy; and the continued implementation of infoways and 100 Gb/s links. “These are structural deliverables because they create permanent capacity for teaching and research,” he adds.

One of the most recent landmarks - in June 2026 - was the conclusion of a new stage of implementation of the e-Science Network by the National Centre for Research in Energy and Materials (CNPEM) in Campinas, with the activation of an ultra-fast 100 Gb/s connection. The infrastructure will serve the CNPEM's four national laboratories, with the objective of connecting them to the National Scientific Computation Laboratory (LNCC) in Petrópolis by the end of the year. The expectation is that, gradually, other institutions will integrate this national scientific collaboration network. ●

Infrastructure that drives science

Conecta Programme expands networks and digital environments to integrate research institutions across Brazil

SCIENTIFIC RESEARCH is increasingly collaborative. Teams from various institutions share data, computational resources, and research projects on a growing scale. To keep up with this transformation, the Conecta Programme has been expanding infrastructure for teaching, research and innovation across Brazil.

Beyond just expanding connectivity, the programme seeks to create conditions for universities, research institutes, and university hospitals to develop collaborative projects and access advanced digital services, independent of their location.

State infoways and metropolitan networks are part of this strategy. While information highways expand regional connectivity, the

metropolitan networks bring this infrastructure closer to teaching and research institutions. Along with increased connectivity, they make networks more resilient, scalable, and ready to respond to growing demands for digital services among the academic community. Eduardo Grizendi, RNP's Director of Engineering and Operations, said the expansion was planned to address current and future requirements of academia.

"New state infoways bring metropolitan networks, providing capillarity to an infrastructure that is robust by design - scalable and with high-capacity through the use of fiber optics - to meet the growth in demand from the academic community for many

"New state infoways bring metropolitan networks, providing capillarity to an infrastructure that is robust by design."

EDUARDO GRIZENDI
Director of Engineering and Operations at RNP



IARA MACHADO
Director of Research, Development
and Innovation at RNP

"The e-Science Network provides a digital infrastructure that enables research institutions, universities, and laboratories to work in an integrated, secure, and scalable manner."

years to come," explains Grizendi.

Infrastructure, however, is just one part of this process. Transforming connectivity into scientific collaboration requires an environment capable of integrating institutions and facilitating the sharing of data and computing resources.

Focused on data-intensive research, common in many so-called Big Science projects, the e-Science Network enables laboratories and research centres to use distributed computing resources, share scientific data, and develop collaborative projects with the performance required by contemporary science. Iara Machado, Director of Research,

Development, and Innovation at RNP, says the network represents a change in how digital infrastructure supports scientific production.

"The e-Science Network is a strategic element for strengthening national scientific research. It provides a digital infrastructure that enables research institutions, universities, and laboratories to work in an integrated, secure, and scalable manner. As science becomes increasingly dependent on data, collaboration, and computational capacity, the e-Science Network ceases to be just a communication network and becomes an enabler of scientific production itself," she explains. ●



More than 50,000 young people have been certified through the free cybersecurity training programme

Hackers for Good: life-changing cybersecurity training

PERSONAL ARCHIVES

Interest in technology is being transformed into a professional opportunity for thousands of young people across the country

PHOTO CREDIT: RNP AND PERSONAL ARCHIVES



“Two days before the end of the project, I got hired.”

HERBERT HOFFMANN



“It was a unique opportunity to get involved in a growing field.”

DEMÉTRIUS FERNANDES

WHEN HE SIGNED UP for Hackers for Good, Herbert Hoffmann (27), was working in sales in Rio de Janeiro. Passionate about technology since childhood, he watched as the number of cyber attacks grew during the pandemic and wanted to gain a better understanding of that universe. Around a year later, he had finished the programme's technology residency and already landed his first job in the field of information security.

His story is an example of the results achieved by Hackers for Good, a free cybersecurity training programme offered by RNP in partnership with Senai São Paulo and Softex, with support from the Ministry of Science, Technology, and Innovation (MCTI). Created to address the shortage of qualified digital security professionals, the first phase of the programme already transformed the interest in technology of thousands of young Brazilians into a professional opportunity.

Herbert had already finished high school when he found out about the programme. “I thought the offer was really great, with professionals providing support, clarifying doubts and showing how everything really works,” he adds. He did his technology residency at RNP Point of Presence in Santa Catarina (PoP-SC) and finished the programme this year. “Two days before the end of the project, I got hired,” he notes.

Before joining Hackers for Good, Demétrius Fernandes (28), also from Rio de Janeiro, was thinking about starting a legal career. “My whole life, I thought I would work in law. I worked in a few offices and I didn't like what I saw. At the end of 2023, I heard about Hackers for Good and was really excited. It was a unique opportunity to get involved in a growing field.” Demétrius received a job offer in the middle of his technology residency. “I got a job as an information security assistant. Today, I'm a full-time analyst”, he says.

Brazil is among the countries most affected by cyber attacks, with public and private organisations increasing investment to protect systems, data, and digital infrastructure. Training in this area opens doors to opportunities while generating a workforce for a strategic area. “Digital crime is more sophisticated, and the quantity of attacks that we're seeing on a daily basis has increased. That's why our work is so important,” Demétrius emphasises. ●

Digital ecosystem transforms teaching in Higher Education Institutions

Services like Moodle and ConferênciaWeb make the academic journey easier



PHOTO CREDIT: IFNMG

“This integrated authentication facilitates the transmission of sensitive student data, so it’s very important that the data remains in a reliable structure.”



PETRÔNIO CÂNDIDO
Coordinator
of AI course
at IFNMG

Classes on Eduplay, live classes on ConferênciaWeb, sharing on FileSender and teaching material on Moodle

Eduplay



FileSender



Academic community



ConferênciaWeb



Moodle

PETRÔNIO CÂNDIDO is coordinator of the Artificial Intelligence technical course at the Federal Institute of Northern Minas Gerais (IFNMG). “It’s Brazil’s first AI technical course”, he exalts. The inaugural class began in January with 1,200 students. Most classes are recorded. “The teaching material is hosted on Moodle, with weekly in-person events. Pre-recorded classes are available on Eduplay and in-person classes are broadcast on *ConferênciaWeb*. We’ve managed to host 800 students in a single meeting”, he recalls.

The course coordinator is a major enthusiast of the system. “Before, students used other applications, and everybody complained,” he explains. “When we started showing them the quantity of resources available through *ConferênciaWeb*, there was no comparison! You can conduct polls and occupy different roles, like moderator, presenter or student. When the capacity of the room is exceeded, we switch streaming to EduPlay. This integration of tools is outstanding.”

Another advantage is that the systems provided by RNP communicate with one another. “I think these services were designed to be used together. I don’t know if others use them with such synergy, but we use them in a structured, connected way, and it works perfectly,” he adds. Along with platforms aimed at teaching, RNP’s Digital Ecosystem for Education includes services such as FileSender, for the secure sharing of large scale files among lecturers, researchers, and students.

More than 300 federal institutions are connected to the digital ecosystem, which unites platforms to support different parts of the academic journey, from online classes to the management of educational content.

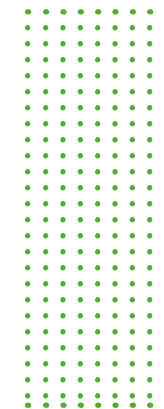
Another system highlight is the question of sovereignty. “The same authentication that the students use to enter Moodle, works for *ConferênciaWeb* and for Eduplay. This integrated authentication facilitates the transmission of sensitive student data, so it’s very important that the data remains in a reliable structure, within our territory, and does not leave here”, Petrônio says.

RNP’s tools meet the requirements of the new regulatory framework for distance learning, approved last year, which calls for virtual environments that simplify day-to-day activities and connectivity across academic settings. This represents a scenario of transformation and opportunities to deliver more structured and integrated solutions. ●



1.6
million
students

41
teaching
institutions



Federal
Institute
students now
have permanent
access to online
course material

PHOTO CREDIT: GAIA SCHÜLER

Conecta Network promotes digital transformation in Federal Institutions

Programme guarantees access to infrastructure and technological solutions for students, teachers and staff

PICTURE THE SCENE: A student enrolls in a Physics degree programme at the Federal Institute of Pernambuco (IFPE) – a fully remote course with no guarantee that access to content will remain consistent throughout the course. Today, this uncertainty is unthinkable, but it was a reality for thousands of students in the recent past. “We didn’t have a long-term perspective because infrastructure and services require heavy investment. Now, with Conecta Network, we can make long-term estimates – we have a

5-year undergraduate degree on the IFPE digital platform. The programme gave us this certainty and confidence that a student can use the same infrastructure from beginning to end”, notes Marco Antônio Araújo, IT Director at IFPE.

The Conecta Network, a partnership between the Secretariat of Professional and Technological Education of the Ministry of Education (Setec/MEC) and RNP, was launched in 2022 to promote digital transformation across Federal Institutes (IFs), Colégio Pedro II and Federal Centres for Technological Education (Cefets). The programme’s model is based on sharing infrastructure, digital platforms and digitised services to achieve scale, reduce costs and strengthen institutional capacity. Its technological solutions include a robust backup tool, the issuance of digital diploma, along with Moodle, a virtual learning environment.

“One of the main benefits was the 24-hour specialised support on Moodle. The programme delivers immeasurable value by providing large-scale solutions, together with implementation and ongoing support that we couldn’t procure individually, like the Security Operations Centre (SOC)”, highlights Fábio Macedo, IT Management Director at the Federal Institute of Rio de Janeiro (IFRJ) and general coordinator of the Forum for Information and Communication Technology Managers (FORTI). He recalls how the SOC even helped with internal elections at IFRJ. “Everybody had doubts about whether the electoral process was legitimate. The system helped us to guarantee complete impartiality,” he adds. The benefits are financial as well. “With the backup tool alone, we’ve saved R\$100,000 (approximately £14,000) per year,” he celebrates.

Marcelo Bregnagnoli, Secretary of Professional and Technological Education at Brazil’s Ministry of Education (MEC), reiterates benefits for the Federal Network. “It’s an innovative programme which will become a benchmark, and it’s already part of our history. I’m sure it will be adopted by other networks.”

Next step, federal universities

The Conecta Network benefits 1.6 million students across 41 Federal Institutes (IFs). Now, the expectation is to bring digital transformation to federal universities through the Nexus Programme, which proposes process standardisation, economy of resources, and increased access to digital solutions. The project is currently under consideration by MEC. ●

Internet Brasil democratizes information

More than 150 thousand students in more than a thousand public schools across eight states received mobile phone sim cards

STUDENTS AT CAIC Misael Aguilar Municipal Civic-Military School, in Juazeiro, Bahia, are exchanging ideas online. They are currently working together on a podcast project to share course content and videos about emotional wellbeing for adolescents. "Our project, EduCaic, was initially conceived as part of our participation in the SIM card programme. We're still at the organisational stage, but the goal is to upload a new video to the school's podcast each week," says school principal Mathias Dias.

This was only possible thanks to Internet Brasil. Since its inception in 2022, the programme has distributed more than 150,000 SIM cards to students in over a thousand public schools across eight states. CAIC Misael Aguilar is one of those - half of the 600 students enrolled between years 6 and 9 at elementary school (*Ensino Fundamental*) use a broadband mobile SIM card, with a monthly 20 GB data plan.

The programme is run by RNP in partnership with the Ministry of Communications (MCOM) and the Ministry of Education (MEC). Dias says he has seen improvement in the performance of students who received the chip. "Students have more access to the school's information and to academic content. Knowledge is circulating better," he says.

Meanwhile, classes are more engaging at Santa Teresinha school, in Petrolina in the state of Pernambuco. "Since a good part of the students have access to SIM cards and mobile internet, classes are far more dynamic. The teacher can bring digital content and suggest research projects. Students no longer want just blackboards and books; they feel the need for this digital world", says principal Mabel Freitas.

The results are also reflected in evaluations of the project. Research conducted among participants shows 88% rate it positively, while 87% believe that Internet Brasil has made a positive contribution

to the educational development of young people. The programme targets low-income students registered at *CadÚnico*, (Federal Government's registry for Social Programmes). For many families, these SIM cards are their only means of internet access, expanding educational digital inclusion possibilities.

"Without this SIM, I wouldn't be able to access the internet every month. My family doesn't always have money to buy credit. Now, I can study and do my school-work using the internet", says Emily Ribeiro (16), a second year high school (*Ensino Médio*) student at the Institute of Education, Science, and Technology of Maranhão (IEMA).

Last year, the programme took third place in the 'Agile Transformation in Public Administration' category of the *Agilidade Brasil* Awards. It was also a finalist in the 2025 *Conecta Latam* Awards for social impact and innovative use of telecommunications technologies. ●

159 thousand sim cards distributed

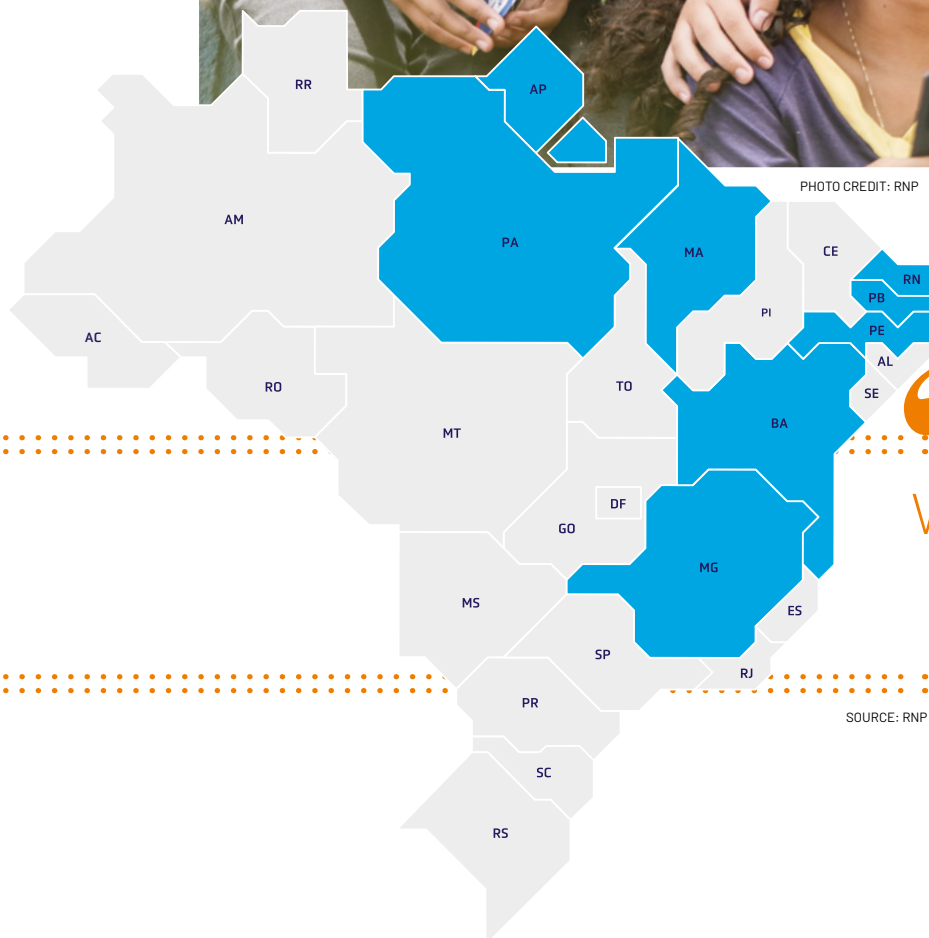
1.000+ schools

8 states
Amapá, Bahia, Maranhão, Minas Gerais, Pará, Paraíba, Pernambuco and Rio Grande do Norte



PHOTO CREDIT: RNP

Students from public schools across eight states, including Minas Gerais, receive a broadband SIM card to access the internet



SOURCE: RNP

“Students no longer want just blackboards and books; they feel the need for this digital world.”

MABEL FREITAS
Principal of Santa Teresinha school in Petrolina, Pernambuco

Artificial intelligence (AI) to support analyses, automate processes, and improve decision-making capacity in areas such as territorial management, land regularisation, and environmental monitoring



PHOTO CREDIT: SHUTTERSTOCK

The challenge of integrating Brazil's environmental and territorial data

IdelA Terra Brasil will create Digital Public Infrastructure, enabling information exchange across systems

BRAZIL IS HOME to a vast collection of environmental and territorial data produced by different public agencies. This includes information on land use, rural properties, vegetation cover, and other records that support everything from public policy formulation to scientific research. The challenge lies in integrating these different databases for agility and efficiency. *IdelA Terra Brasil* - coordinated by Brazil's Ministry of Management and Innovation in Public Services (MGI), with the participation of RNP and other federal institutions - was created to address this.

The programme will create a Digital Public Infrastructure (DPI), which will function as a shared platform to connect Brazil's environmental and territorial databases. This will enable various systems to access and exchange information in a secure and interoperable manner. The initiative will also leverage artificial intelligence (AI) to support analyses, automate processes, and improve decision-making capacity in areas like territorial management, land regularisation, and environmental monitoring.

"The biggest challenge is not technological, but institutional integration and data governance. Transforming this asset into a DPI means creating an interoperable environment in which data can be shared securely, ensuring quality, traceability, which continually updates, while preserving the autonomy of each institution. RNP is programme manager, responsible for coordinating its implementation and integrating the competencies of

the government and the scientific community", explains Antonio Carlos Fernandes Nunes, Director of Services and Solutions at RNP.

Along with public administration, the initiative also stands to benefit universities and other research institutions by giving access to more qualified, integrated and standardised data. This will reduce the time spent preparing data and facilitate research in areas such as climate change, biodiversity, agriculture, territorial planning, and data science.

"The programme shows that digital sovereignty is not just about technology. It depends on the ability to transform scientific knowledge, infrastructure and institutional cooperation into permanent assets for the country's development. By integrating public data and strengthening the technological capacities installed at Brazilian institutions, we boost the technological autonomy of the State and create conditions for new digital public policies", says Nunes.

Projected for development over the next four years, *IdelA Terra Brasil* should also represent a model for new DPI projects in strategic areas such as health, education, climate, and science.

"*IdelA Terra Brasil* is very important for advancing public services in areas of cadastral, environmental, and land regularisation, as well as enhancing transparency around territorial and environmental data", says Luanna Roncaratti, Deputy Secretary of Digital Government at MGI. ●

“Digital sovereignty is not just about technology. It depends on the ability to transform scientific knowledge, infrastructure and institutional cooperation into permanent assets for the country's development.”

ANTÔNIO CARLOS FERNANDES NUNES
Director of Services and Solutions at RNP

Free-to-air television enters the era of interactivity

Fully integrated with the internet and digital services, DTV+ offers a free personalised experience

SINCE IT'S ARRIVAL IN BRAZIL in 1950, television has captured some of the country's biggest historical moments, including World Cup victories and the *Diretas Já* ('Direct Elections Now') movement in 1984. Even with the rise of streaming and social networks, television remains present in 94% of Brazilian homes according to the National Household Sample Study: Information & Communication Technology (PNAD Continua TIC 2025) conducted by the Brazilian Institute of Geography and Statistics (IBGE). Now DTV+, a new generation of free-to-air TV, promises to change how Brazilians consume audiovisual content.

This technology combines traditional broadcast television transmission with internet capabilities, allowing for a more interactive experience with on-demand content, broadcaster apps, higher-quality images and sound, and a range of new digital services. Different from current models, DTV+ maintains free access to broadcast television while incorporating features already present on digital platforms.

"All of this will provide the user with a more immersive and personalised experience, with the possibility to interact with TV programmes, access public services and receive emergency alerts specific to their region. Since the beginning, the project sought to incorporate not just technical aspects, but also viewer experience and the social role of television", explains Edgar Nunes Costa Corrêa, Solutions Coordinator of the Adjunct Directorate of Solutions Management at RNP.

The delivery of DTV+ involved more than 100 Brazilian researchers over five years, involving universities, broadcasters, government, and institutes of science and technology. The studies helped define everything from the technological architecture to the user navigation experience for the next generation of free-to-air TV. Throughout this process, RNP played a key role in coordinating the research network and integrating teams, while supporting testing, validation, and activity management.

The new generation of TV has already started to be adopted in an experimental form in cities such as Rio de Janeiro, São Paulo, and

Brasília, and should be rolled out in other regions in the coming years. This implementation will be facilitated by the retro-compatibility of the new standard, enabling DTV-compatible receivers to access the new features, whilst continuing to receive their current range of digital TV channels.

"DTV+ represents an important opportunity to modernize free-to-air television in Brazil and to keep it relevant in an increasingly digital landscape. In practice, it makes television more personalised, accessible, and aligned with current media consumption habits", says Corrêa. ●



The development of DTV+ involved more than 100 researchers over five years, and included universities, broadcasters, government and institutions of science and technology

“DTV+ represents an important opportunity to modernize free-to-air television in Brazil and to keep it relevant in an increasingly digital landscape.”

EDGAR NUNES DA COTA CORRÊA
Solutions Coordinator at RNP

The network behind Brazilian science

Directors of Abruem, Andifes, Conif and SBPC highlight how connectivity and digital services strengthen education, research, and innovation in Brazil



ANA BEATRIZ DE OLIVEIRA
Andifes

PHOTO CREDIT:
PERSONAL ARCHIVES

“RNP is a strategic partner of federal universities and of Federal Centres for Technological Education (Cefets). This partnership enters a new stage with the Nexus Programme, where the main focus is the protection of institutional data. The establishment of the Security Operations Centre will enable continuous network monitoring, prevention of cyber attacks, and faster incident response. Nexus will operate through the network structure of Andifes associated institutions, built over the Association’s 37-year history.”



FRANCILENE PROCÓPIO GARCIA
SBPC

PHOTO CREDIT:
JARDEL RODRIGUES/
SBPC

“We view RNP not only as a connectivity provider for universities, but as a common infrastructure of excellence for Brazilian science. These structures are home to approximately 200,000 researchers and millions of student users. And there’s Eduroam, the academic roaming service which offers secure automatic access to the internet. Another important point is the discussion about open science. For me, speaking from the Northeast of Brazil, RNP has brought equity to scientific connectivity, which is fundamental for a country like ours.”



JÚLIO XANDRO HECK
Conif

PHOTO CREDIT:
MOACIR
EVANGELISTA/CONIF

“The 700 entities which make up Conif - from 42 institutions - leverage RNP’s connectivity, which is the principal product delivered by the network. I should also highlight the importance of Digital Diploma, which is already being issued by all the higher level courses and which we’re introducing for technical courses. The knowledge produced in the Federal Institutions, Cefets, and Colégio Pedro II, is now shared in real-time thanks to RNP’s work. Academically, we always win when we think as a network.”



LEONARDO BEROLOT
Abruem

PHOTO CREDIT:
CARLA DELLAGNESE/
UERGS

“We have 46 institutions across 446 campus locations. Many of these universities are in locations not reached by the federal network. Students can only access public higher education through our network. In the case of EAD, the situation is similar. With a network the size of RNP, we can guarantee greater connectivity and quality, both of which are often in short supply in rural areas. Having a network that guarantees connectivity is fundamental to expanding higher education in Brazil’s most remote regions.”

A SINGLE NETWORK which connects thousands of students at public institutions from the north to the south, from large urban centres to rural towns, and which stimulates knowledge and Brazilian scientific output: this is RNP. The network leaves nobody behind, connecting the different Brazils in all of their geographic and structural diversity, with efficiency and security.

This is the view of the presidents of four of Brazil’s

largest research institutions, who spoke with RNP in Review. Below, we highlight the opinions of leaders of the Brazilian Association of Rectors of State and Municipal Universities (Abruem), the National Association of Directors of Federal Higher Education Institutions (Andifes), the National Council of Institutions of the Federal Network of Professional, Scientific, and Technological Education (Conif) and the Brazilian Society for the Advancement of Science (SBPC). ●



ESR courses focus on the real needs of teaching and research institutions

ESR trains 60 thousand professionals for technology challenges

The School of Networks (ESR) celebrates 20 years with its teaching model focused on institutional needs



LEANDRO GUIMARÃES
Deputy Director of ESR

THE STRENGTHENING of information security at the Federal University of São Paulo (Unifesp) marked a milestone in the career of IT analyst Leandro Tenório. To work in an area that is increasingly important in public institutions, he and the university's IT Superintendent structured a training plan which included courses from the School of Networks (ESR), a service branch of RNP.

"The courses at ESR emerged as an opportunity to expand my technical education. What drew my attention most was the combination of theory and applied practice. Many start with an introductory foundation but progress to more technical topics, featuring examples and practices for everyday work", he reports.

After graduating, Tenório became involved in the development of Unifesp's Information Security Policy and in the implementation of the Cyber Incident Response Team, two initiatives which strengthened the governance and protection of the university's systems.

"This knowledge contributed to a more qualified participation: it broadened my vision of information security and strengthened my technical foundation to work on more strategic projects."

Tenório's trajectory illustrates the impact of the programmes offered by ESR, which has already trained around 60,000 students and attended more than eleven hundred organizations in twenty years. For Leandro Guimarães, Deputy Director of ESR, the connection between training and real-world problems is one of the school's major differentiators.

"More than simply following trends, our focus is to understand the real needs of teaching and research institutions and translate this into training programmes which generate concrete results. This process involves identifying competency gaps and structuring training programmes that make sense for every institution", Guimarães explains.

A key factor is building a team of engaged and qualified professionals. "We continue to evolve our capabilities in new areas such as artificial intelligence (AI), data science, cloud computing, and cybersecurity, always focusing on practical application. Looking to the future, I see ESR becoming increasingly connected to the demands of institutions", projects the deputy director.

20 years of collaboration in healthcare

Over two decades, RUTE became one of the world's leading telehealth networks, uniting health specialists from all over Brazil

THE UNIVERSITY TELEMEDICINE network (RUTE) celebrates its 20th anniversary, having established itself as one of Brazil's main collaborative healthcare initiatives. Over two decades, RUTE has expanded its scope far beyond telemedicine: connecting university hospitals, educational institutions, researchers, and healthcare professionals across Brazil to share knowledge, discuss clinical cases, and broaden access to specialised care

"RUTE is not just telemedicine, and it's not just digital health. It's a collaborative health network", explains its coordinator, Luiz Ary Messina, one of the pioneers behind telemedicine growth in Brazil. For him, the secret to its success is decentralisation. "RUTE is exceptionally strong because of its deep expertise and knowledge. Our strategy has always been to connect leading hospitals with those that need support."

Coordinated by RNP, the network connects healthcare professionals, teachers, and students through Special Interest Groups (SIGs) - thematic communities focused on different specialisations. These groups host discussions of clinical cases, lectures, scientific meetings, and the exchange of experiences.

"When we talk about telemedicine, most people think about remote consultation. In our case, the most important factor is knowledge exchange and the development of a network of trust. We've built a community of professionals who stay up-to-date with events and can be contacted in the case of emergencies", explains paediatrician Evelyn Eisenstein, coordinator Children and Adolescents SIG at RUTE.

The initiative has kept pace with technological advancements, expanding possibilities for collaboration. While video

conferences were a novelty at first, today the network connects professionals from different regions and countries to discuss complex cases and to exchange scientific knowledge.

"In the beginning, we didn't have WhatsApp. Nowadays, we bring together professionals from all over Brazil and even from other countries. One example was the work of a paediatrician from Rio Grande do Sul who organised discussions on intensive paediatric therapy with hospitals in Maranhão and Ceará", she says.

If two decades ago, the focus was connecting institutions, now the challenge is to expand collaboration with new technologies. "There is already talk about a network of smart intensive care units (ICUs), robotic telesurgery and technology underpinned by artificial intelligence. This will happen thanks to the collaboration network that is RUTE", says Messina. ●



LUIZ ARY MESSINA
Coordinator at RUTE

“Our strategy is to connect leading hospitals with those that need support.”



RUTE enables health professionals from different regions and countries to exchange scientific knowledge

PHOTO CREDIT: RNP



PHOTO CREDIT: RNP

The Ipê Network evolves every year to support growing volumes of information



Ipê Network evolves toward more connected science

Modernisation boosts capacity for AI applications, large databases, and collaborative projects

THE CHALLENGES OF TEACHING and research have changed. Previously, connectivity needed to keep pace with the number of users. Now, it also needs to support artificial intelligence (AI) applications, large databases, and scientific experiments which move increasingly large volumes of information.

To address this issue, the Ipê Network, a national RNP-operated infrastructure which connects more than 500 institutions, continues to evolve. The deployment of the seventh generation expands the backbone capacity with 100 Gb/s circuits and creates alternative routes for data traffic. In 2026, this process

advanced with the activation of new circuits between Goiás and Mato Grosso do Sul, Goiás and the Federal District (Brasília), as well as Amazonas and Rondônia.

Modernisation also enables researchers from different regions to share data, develop collaborative projects, and use equipment remotely. At the same time, through the *Conecta* Programme, the establishment of state-level infoways increases the reach of connectivity infrastructure. This movement increases the integration between universities, university hospitals, and research centres in different regions of the country, benefitting scientific collaboration. ●

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