



CASE STUDY: ST ENGINEERING IDIRECT AND VIA DIRETA DELIVER LONG DISTANCE LEARNING ACROSS THE AMAZONAS

The Challenge

Back in 2015, it was reported that roughly 97 million people in Brazil did not have internet access and Government data showed that only about one third of all children made it to the sixth grade. These astonishing statistics lead the Brazilian Government to take action and implement a clear plan to enable access to more widespread education, especially to those children living in more remote areas of the country.

To help curb the lack of connectivity, the-then Amazonas State Secretary of Education commissioned the development of a distance-learning program spanning Brazil. The program, contracted to Via Direta Telecom, a subsidiary of TV and radio broadcast group Rede

Tiradentes de Telecomunicações, aimed to connect roughly 45,000 students situated across hundreds of municipalities in remote, secluded communities along the rivers of the Amazon basin, with teachers located in Manaus, the capital city of Amazonas.

Via Direta partnered with ST Engineering iDirect, selecting the proven Evolution® VSAT platform to power their ambitious mission to connect thousands of students to a distance-learning program. Since the start of the project in 2015, the two companies have continued to expand the network every year and are constantly working to improve the reach of connections. However, digitalizing the vast landscape of Brazil is no small feat and there have been many obstacles to overcome to continue the progression of the project.

“For many communities spread over the network of rivers and forests that make up the Brazilian state of Amazonas, there is no alternate way to attend school. We are talking about an area bigger than the combined territories of France, Sweden, Spain and Greece. Over such vast area, there is extreme shortage of qualified teachers as most live at the state capital city of Manaus.”

Adriano Chagas,
Director of Engineering, Via Direta

One of the first challenges was to upgrade the existing VSATs (roughly 600) to the new system, all within 60 days. This presented a real challenge as the region has very little infrastructure, roads, power or cellular coverage. Some sites required several days of travel to gain access by boat and then by foot as helicopters were not readily available. To accelerate this process, ST Engineering iDirect provided the Satmotion Pocket remote commissioning solution to streamline the migration process by allowing VSAT installers to autonomously deploy the sites quickly and cost-effectively. Satmotion also optimizes network performance with precise installation to avoid adjacent satellite interference. With intense work, the improved network was successfully implemented on time and students started enjoying the services from a local provider, installed in Manaus.



The Solution

ST Engineering iDirect needed to ensure that every site supported IPTV, the application that is used for long-distance learning and multi-cast streaming. Utilizing the Evolution platform, the team ran iDX 4.1.3 and used Paired Carrier Multiple Access (PCMA) Cancellers in conjunction with IPTV to maximize the efficiency and overall operation of the application. The solution successfully supports peak transmission of seven simultaneous and interactive classes at all times. This has now evolved to allow the use of facilitated learning, using the Google Classroom software suite, helping more Amazonian students learn vital skills needed for a bright future.



The network was designed to allow up to 8Mbps of multicast traffic whilst supporting interactions with remote classrooms which can consume up to 1Mbps of upstream unicast traffic.

Over the years of work, continuous improvements have been made to the sites. When the work with ST Engineering iDirect began, 18MHz of Ku-band spectrum was used through PCMA. This is in stark contrast to last year, when ST Engineering iDirect assisted Via Direta with expansion of the network to 41 MHz, crafting a brand-new frequency plan and performing major Quality of Service (QoS) optimization updates to further enhance the network's quality and resilience.



The Results

The project has been a major success and helped connect thousands of Amazonian children to educational resources online. The Department of Education (Seduc Amazonas), estimates that over 200,000 students depend on this network to receive basic education at all levels. Today, the network is comprised of 1070 installed sites, with plans to expand to 1200 by the end of 2021 to reach even more children.

The ST Engineering iDirect solution has resulted in spectrum savings of 35-40% across the network, enabling the accommodation of more traffic as demand has been very high.

It's also clear that communities are not only benefiting from the educational aspect of the platform but are using it to provide other services, especially during the COVID-19 pandemic. The network link is a basic need, often vital for entire communities, and it is used in ways that were not originally intended and when classes are over, internet browsing is available for general public use from any of the connected sites. For example, in absence of cellular

coverage, the embedded chat tool is often used to exchange messages between communities that are days apart by river travel. "We are fully aware that the linked communities also use the link to request medical help, order supplies, get news updates, receive social services, but also to socialize," continues Mr. Tiradentes. "We even had marriage proposals over satellite link, right at the beginning of the pandemic. Even with the classes suspended, we kept the network running because of the important lifeline it represents for our people."

In 2019 it was reported that connectivity had vastly improved in Brazil, but more than 60 million people still did not have any access to the internet. This demonstrates that there is still a lot of work to be done, but ST Engineering iDirect is confident that we can help connect many more thousands of students across Brazil with a long-distance education. In just five years, the network has become the largest in Brazil and shows no signs of slowing down.

"We see this network still growing steadily, not only in size, but also in importance," said Mr. Tiradentes. "We receive constant growth and modernization requests; it is not always easy to keep up with the demand."

"The partnership with iDirect has been the cornerstone of our project; we simply could not have done this without iDirect's direct input and experience."

Ronaldo Tiradentes,
CEO, Via Direta

Boosting Performance

ST Engineering iDirect will install the latest DVB-S2/DVB-S2X iQDesktop+ modems to further expand the network and enhance the connectivity of the area. We will continue to work with Via Direta to further optimize the service. Existing sites will also be upgraded to iQ Desktop+ modems, doubling the performance up to 200 Mbps.

