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Brazilian University Secures Its Journey to AWS Cloud with Fortinet Solutions

Tiradentes University (Unit), part of the Tiradentes Group, is an educational institution with 62 years of tradition in northeastern Brazil. With five campuses in Sergipe, two in Pernambuco, and 29 distance learning centers in five northeastern states, its team of around 2,500 employees works together to serve more than 22,000 students who attend the institutions.

To broaden the guidelines for quality education in Brazil, the Tiradentes Group was established as a corporate entity for the institutional management of the Unit in Sergipe and the Tiradentes University Center in Pernambuco, the Tiradentes College in Goiana (PE), the first Innovation Center for Education in the Northeast, the Tiradentes Innovation Center, and the Distance Education centers installed in 29 Brazilian cities. The Institute of Technology and Research (ITP), a nonprofit organization created in 1998 by the Tiradentes Group, produces science, technology, and innovation in Sergipe and also maintains the Memorial of Sergipe Prof. Jouberto Uchôa, a museum whose objective is to preserve the memory of Sergipe and to serve as a source of information and research on the state. All the educational structures of the Tiradentes Group rely on Fortinet technology, as do other companies of the Uchôa family, such as the Decós Hospital.

"Unit has always been a pioneer in terms of technology. We were one of the first universities to offer online registration and credit card payments in Brazil's northeast," says Fábio Santos, CIO at Tiradentes Group.

From On-Premises to the Cloud

As they looked to the future, Tiradentes Group recognized the need to enhance its network infrastructure to accommodate the organization's needs and maintain network stability during high-demand periods, such as enrollment terms and the semester's final exams at Unit. This would ensure connection quality and the security of data and applications used by staff and students.

Unit relied on an on-premises data center to connect the teaching units to the institution's applications. When the equipment's warranty period was approaching, the institution was faced with either upgrading its on-premises infrastructure or considering moving to the cloud.

Rather than reinvest in on-premises infrastructure, the university moved to the Amazon Web Services (AWS) cloud, aiming for improved flexibility, scalability, and innovation opportunities. However, security was a critical concern during this migration. "With the sensitive nature of student and staff data, we knew we needed a robust security solution that could handle complex cloud environments," shares Fábio Santos.

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CIO, Tiradentes Group

Details

Customer: Universidade Tiradentes (Unit) - Tiradentes Group

Industry: Education

Location: Brazil

Business Impact

- 100% of operations successfully securely migrated to the cloud

- Decrease in threat identification false positives

- Highly resilient infrastructure, developed to operate on-demand

- Improvement in access quality for students and employees

Having Flexibility for Growth

After relying on the FortiGate Next-Generation Firewall (NGFW) to protect its seven sites, the university chose Fortinet solutions to secure its AWS cloud infrastructure. The institution designed and implemented a comprehensive security architecture tailored to the university's needs with the help of Fortinet partner, TLD. "Initially, everything was new, and we faced some challenges in starting the cloud migration, but when Fortinet came into the project, we got everything we needed to implement this incredible infrastructure. With Fortinet's solutions, we got exactly what we wanted," says Fábio Santos.

To manage the consumption of Fortinet solutions that protect its cloud, Tiradentes Group employed Fortinet's usage-based security licensing, FortiFlex. During periods of high activity, such as enrollment and exams, the university can scale its security infrastructure to handle increased traffic. Once the demand subsides, FortiFlex allows them to scale back, ensuring cost-efficiency without sacrificing protection. "FortiFlex promotes what I would call a conscious use of cloud resources and solutions. I can enable and disable resources according to the needs of my network environment, allocating resources resiliently without impacting the user experience," explains Victor Franco, infrastructure and operations manager at Tiradentes Group.

In addition to helping organizations such as Tiradentes Group optimize their cloud security deployment and investment, FortiFlex also delivers a broad and ever-growing catalog of solutions to help organizations future-proof their cloud.

A Secure and Seamless Cloud Environment

By deploying two FortiGate NGFW virtual machine (VM), Unit can protect its AWS cloud environment from all campuses and its distance learning centers, ensuring that every access attempt is made securely and preventing threats such as malware and ransomware from reaching the Unit's sensitive data. All campuses are interconnected by two links, one MPLS and one VPN. The VPN data is encrypted for contingency. Each campus or hub also uses Fortinet Secure SD-WAN to improve bandwidth consumption and provide users with direct access to the communication network.

Thanks to two FortiGate VMs operating simultaneously, network traffic between the university's cloud infrastructure and its campuses is automatically balanced and protected. In periods of high demand, the firewalls dynamically scale to manage increased traffic without compromising performance. Operating across two AWS availability zones, the hybrid mesh firewalls provide critical uptime and resiliency, ensuring that network communications remain stable and secure even if one zone experiences a failure.

Tiradentes Group also deployed FortiWeb, which filters the requests made by application users, thoroughly inspects each one, and allows access to AWS only after security validations. A segmented environment enables better control of access and troubleshooting data by integrating FortiGate VM with FortiWeb. This added layer of protection ensures that sensitive student and staff data remains secure while optimizing application performance.

Tiradentes Group further enhanced its security posture by deploying FortiToken, securing user access across the network. "There are more than 15 interconnected units protected by FortiGate VM and accessed by FortiToken. Employees have this solution installed on their mobile phones and use this authenticator to access the applications, guaranteeing the security of their devices and our network. There are more than 200 devices with this solution," explains Fábio Santos.

Solutions

- FortiGate Next-Generation Firewall
- FortiGate VM
- Fortinet Secure SD-WAN
- FortiAnalyzer VM
- FortiManager
- FortiWeb
- FortiToken

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Complex Infrastructure with Easy Management

Tiradentes Group also simplifies resource management and security checks with FortiAnalyzer VM in the cloud, which connects the analysis and threat detection data from all the FortiGate VMs in the same place, reducing detection time and the occurrence of false positives. Through FortiManager, the Sergipe institution replicates the security policies for all the FortiGates VMs in a unified way, guaranteeing the standardization of security features. "FortiManager and FortiAnalyzer are essential for us to handle our environment properly regarding alert management and communication. Through them, and with a FortiGate state-of-the-art firewall, we can monitor the access of more than 22,000 students and 2,500 employees," says Victor Franco.

Commitment to Innovation and Technology

With the solutions operating in a synchronized fashion and under FortiFlex, Tiradentes Group could achieve an infrastructure that is robust in terms of security and highly adaptable to their needs. Once the project was complete, Unit became the only university in northeastern Brazil to operate 100% in the AWS cloud. The IT team noticed significant improvements in how fast they can add tools or features on demand.

The information security team's reports also reinforced the effectiveness of access segregation and the robustness of the protection solutions. "The number of false positives in threat alerts was higher with the previous infrastructure. We have also seen a reduction in alerts in general," says Victor Franco. Going further, he also points out that the new infrastructure has managed to increase control and protection of the cloud to such an extent that even the students who access Unit networks through the campuses and hubs have noticed improvements in the access quality.

Following its modernization project, Tiradentes Group intends to restructure and modernize its Wi-Fi network. This project involves replacing the current equipment with the minimum possible impact on users. "Although it is a challenging project, Tiradentes Group's differentiated architecture is now prepared to keep up and provide the necessary support for the stability of the new project. Thanks to Fortinet, I have an infrastructure ready to scale up," explains Fábio Santos.

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