HashiCorp

cielo | CUSTOMER CASE STUDY

Paying it forward, 5x faster

Brazil's #1 electronic payments company uses HashiCorp Terraform's infrastructure as code to cash in on 5x faster time-to-market

// Infrastructure Enables Innovation

Cielo Summary

Cielo S.A. is the leading electronic payments provider in Latin America. The company employs over 4,500 workers dedicated to providing and supporting a comprehensive portfolio of payment solutions for over 1 million customers across the country. Cielo's mobile, e-commerce, and terminal-based transaction solutions handle more than 6.9 billion transactions annually, providing customers with the efficiency, security, and support they need to compete in today's business landscape.

CIELO FAST FACTS

26 million transactions processed daily

<15 minutes to deliver infrastructure, reduced from 30 days

5x faster time-to-market

1.6 million customers

50% decrease in time spent on change requests

90% decrease in time spent provisioning infrastructure

> We needed to accelerate delivery of new solutions, features, and functionality to our customers if we wanted to maintain our market advantage. But to do that we needed a way to provision infrastructure faster, more efficiently, and in a cost-effective way."

ANTONIO LOMBARDI NETO
INFRASTRUCTURE DIRECTOR, CIELO

Servicing 1.6 Million Customers Requires Sophisticated Infrastructure

Brazil has one of the fastest developing economies on the planet. Beyond its vast stores of natural resources and raw materials, it's also home to a burgeoning professional services industry driven by digital-savvy entrepreneurs and business leaders.

Like other markets, Brazilian businesses large and small are increasingly using credit and debit cards in their daily operations and are turning to Cielo for the tools and technologies to support a surging interest in card-driven transactions. The company, founded in 1995, is the leading electronic payment processor in Brazil and Latin America, processing more than 26 million transactions daily, a financial volume equivalent to 10% of the country's GDP.

But processing huge volumes of transactions each day requires a sophisticated and adaptable infrastructure to support low-latency transactions across a myriad of terminals, systems, and vendors. And company leaders feared that the team's traditional manual infrastructure management could slow the development and delivery of new solutions to the market that would slowly erode Cielo's position as a market leader.

"Competition in payment processing in Brazil is intense and only getting more challenging," says Antonio Lombardi Neto, infrastructure and telecom director at Cielo. "We needed to accelerate delivery of new solutions, features, and functionality to our customers if we wanted to maintain our market advantage. But to do that we needed a way to provision infrastructure faster, more efficiently, and in a cost-effective way."

Dynamic Market, Chaotic Infrastructure

In the electronic payments industry scale, speed, and high availability are everything. Not only do customers and internal users expect their preferred applications and systems to be reliably accessible, but both industry and government regulators also set lofty standards for performance, security, and availability financial services firms like Cielo must meet.

In the past Cielo had provisioned most of its infrastructure — both on-premises bare metal boxes and occasional cloud deployments in AWS and Azure — manually. However, they realized the process was misaligned with the team's agile development methodology and simultaneously slowed new product development while increasing operating costs.

In particular, the lack of a standardized deployment methodology made it difficult to solve distributed infrastructure problems. Every project required the infrastructure team to create new environments, which could take up to a month to set up and cause significant delays in releasing new market-shaping products like a digital wallet, mobile payment solutions, and other business enablement solutions.

"We had two goals for modernizing our infrastructure deployments. One was to support our agile product development model so we can deliver innovative and reliable solutions to our customers faster," Neto explains. "The other was to empower our development squads with some basic guardrails and guidelines provided by policy-as-code features that would help them work more creatively, faster. But to achieve both, we needed to standardize and simplify the entire end-to-end development process to continue providing our customers with scalable, high-performance solutions."

Challenges

Delivering speed and scale to customers while maintaining high availability

Manual infrastructure provisioning was costly and inefficient

Infrastructure delays slowed project delivery

> " Terraform helped us reduce the average infrastructure delivery time from 1 month to under 15 minutes, and cut change request time up to 50%. The end result is that our time-to-market with new products and features is five times faster than before, ensuring we're able to meet the evolving needs of our partners and customers and stay ahead of a growing list of competitors."

MARCOS RODRIGUES,
CLOUD, SRE, AND DATA CENTER INFRASTRUCTURE MANAGER, CIELO

Faster provisioning and standardization with automated infrastructure implementation

After evaluating various options, Cielo adopted HashiCorp Terraform to drastically streamline its infrastructure deployment practices and accelerate the rollout of new products to market. In particular, the team was drawn to Terraform's intuitive, human-readable code, multi-cloud provisioning capabilities, and self-service features like packaging infrastructure as code into reusable modules that enable developers to quickly provision their own infrastructure on-demand.

With Terraform, Cielo can provide standardized infrastructure deployment across the enterprise. The solution provides workspaces to house modules developed by the company's Platform Engineering team and development teams rapidly build the infrastructure they need — hardware, IaaS, or other SaaS services — to create and launch their particular projects. Cielo uses the Sentinel policy-as-code framework to validate that everything is provisioned correctly.

Cielo's cloud, SRE and datacenter infrastructure manager Marcos Rodrigues says that one of the company's biggest success stories using HashiCorp solutions is the creation and market launch of CieloPay, a digital wallet product for customers and a white-label platform customers and partners can use as their own branded solution.

"CieloPay was a high-profile and anticipated project with an aggressive timeline that required delivering the entire infrastructure in under a month," he says. "Terraform gave every squad involved in the project the resources they needed to build the infrastructure for their piece of the work in convenient modules, while ensuring they were all deploying infrastructure the same way to keep the project on track and on schedule."

Rodrigues says that in addition to the successful CieloPay launch, Terraform has transformed Cielo's entire product development lifecycle by eliminating the slowest, most resource-intensive aspects of the job. "Terraform helped us reduce the average infrastructure delivery time from 1 month to under 15 minutes, and cut change request time up to 50%," said Rodriguez. "The end result is that our time-to-market with new products and features is five times faster than before, ensuring we're able to meet the evolving needs of our partners and customers and stay ahead of a growing list of competitors."

On a broader scale, Terraform has opened a whole new world of self-sufficiency and autonomy for Cielo's development squads. Since they're no longer constrained by manual processes and reliance on the infrastructure team for essential services, teams are unencumbered to explore and develop new product or service concepts that can help the company continue to grow, evolve, and dominate the Brazilian market.

Outcomes

Gave autonomy to squads, since they no longer depend on the manual infrastructure team

Reduced average infrastructure delivery from 1 month to under 15 minutes

Accelerated time-to-market by 5x

Delivers greater standardization of infrastructure

Solution

Cielo is using HashiCorp Terraform for efficient infrastructure delivery to support aggressive product development timelines.

Cielo Partners

Antonio Lombardi Neto is the infrastructure director of Cielo, providing technical leadership and responsible for improved velocity of delivering products and modernizing the infrastructure of the company. He brings more than 30 years of executive IT experience managing telecoms, data center infrastructures and cloud operations at the biggest financial services companies in Brazil (Orbitall, Fidelity, REDE and Cielo).

Antonio Lombardi Neto,
Infrastructure Director, Cielo

Marcos Alino Rodrigues is a cloud, SRE, and data center infrastructure manager at Cielo and plays an integral role in the company's journey to the cloud and datacenter modernization efforts. Rodrigues brings more than 15 years of IT experience with a holistic view of the IT landscape cultivated by his time working as an infrastructure and architecture developer, as well as an extensive technological background ranging from mainframe to cloud computing.

Marcos Rodrigues,
Cloud, SRE, and Data Center Infrastructure Manager, Cielo

Technology Stack

- **Infrastructure:** AWS (10%), Microsoft Azure (5%), on-site (bare metal) (85%)
- **Workload type:** Linux (90%), Windows (10%)
- **Container execution time:** on average 5 minutes
- **Orchestrator:** Red Hat Openshift, Amazon EKS, Amazon ECS
- **CI / CD:** GitLab CI, ThoughtWorks GoCD, Red Hat Ansible, HashiCorp Terraform
- **Data service:** Oracle, MongoDB, DynamoDB
- **Storage:** EMC, Amazon S3
- **Version control:** Red Hat Ansible
- **Network:** Check Point
- **Provisioning:** HashiCorp Terraform, Red Hat Ansible
- **Security management:** HashiCorp Vault

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