CSUDigital

Established in 1992, CSU is a leading Brazilian provider of advanced technology services focused on electronic transaction processing and customer relations. CSU offers complete solutions for credit card and electronic payment programs, custom loyalty programs, e-commerce, sales, billing, credit, and contact center solutions.

AT A GLANCE:

▶ *30 years in business*

▶ *6000 employees*

▶ *4 major business divisions*

▶ *Publicly traded*

How CSU achieved unlimited scalability by migrating payments to the cloud

Migrating payments to the cloud

CSU contacted Futurex in 2021. In their aim to expand business operations across new markets, they sought to pioneer banking as a service (BaaS) in Brazil. But their distributed, legacy HSM architecture needed a swift upgrade. Futurex helped CSU migrate their payments issuing and acquiring infrastructure - including production and testing environments - to the cloud. The migration resulted in a scalable and centralized cloud HSM architecture with the ability to develop exciting new services for clients and to fulfill diverse use cases.

Cloud payment HSMs

Historically, physical hardware security modules (HSMs) have been used to encrypt an organization's sensitive data. As organizations migrate their applications to public cloud providers, cloud HSMs serve their encryption needs.

Cloud payment HSMs perform encryption functions as the basis of an organization's enterprise data security ecosystem. With VirtuCrypt, they can be quickly configured and integrated into existing infrastructure, and their range of functionality and processing power can be scaled according to business needs. This makes Futurex cloud payment HSMs great all-in-one solutions for enterprises of any size.

The primary use cases for cloud payment HSMs are card and mobile issuance and transaction acquiring, which includes functions such as point-to-point encryption (P2PE) and database encryption. However, Futurex cloud payment HSMs (as well as their on-premises counterparts) are able to carry out both payment and general purpose encryption tasks.

Project goals

In the years leading up to CSU's partnership with Futurex, the company had undertaken an ambitious strategy to expand its payment services. An essential part of this strategy would involve a significant upgrade to their existing payment security infrastructure.

Digital transformation: Overall, CSU's goals for processing, integration, and infrastructure management suggested a cloud based strategy. Such an approach would aid in developing innovative new services.
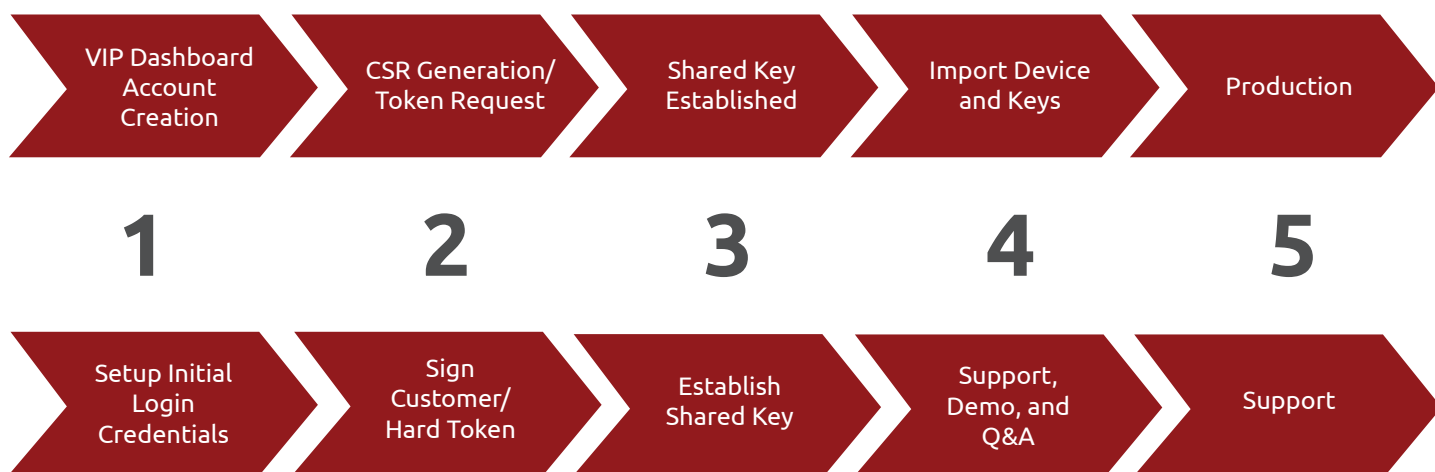
Public cloud integration: Additionally, CSU needed to integrate their infrastructure with Amazon Web Services (AWS) to increase production capacity and pursue new business initiatives. Since their HSMs were sourced from multiple vendors (each with different integration requirements), this posed a challenge to enterprise-wide integration with a public cloud provider.

Virtually unlimited scalability: The company had found that its existing setup was reaching the limits of how far they could scale their operations. Far from a simple question of processing speed, true scalability would entail the ability to quickly expand cryptographic functionality to resolve emergent use cases.

Infrastructure consolidation: CSU's goal was to deploy the largest payment issuing system in South America. They also sought to offer innovative new services, such as BaaS, to clients. Such an objective would require their existing distributed infrastructure to be centralized from a management standpoint.

Compliance scope reduction: Integral to CSU's ambition to broaden its operations and client base was the need to comply with ever-changing compliance requirements. Their solution would need to involve inherent, robust compliance with a wide range of standards.

Customer Steps

| VIP Dashboard Account Creation	CSR Generation/ Token Request	Shared Key Established	Import Device and Keys	Production
1	**2**	**3**	**4**	**5**
Setup Initial Login Credentials	Sign Customer/ Hard Token	Establish Shared Key	Support, Demo, and Q&A	Support

VirtuCrypt Steps

The solution

First, CSU consulted with Futurex Solutions Architects, who quickly and easily helped the company acquire a license to Futurex's VirtuCrypt cloud service. This gave CSU immediate access to the VirtuCrypt Intelligence Portal (VIP), the control panel with which customers are able to spin up both individual cloud payment HSMs and entire cryptographic ecosystems.

Instances of VirtuCrypt cloud payment HSMs are located in high-security data centers. These VirtuCrypt data centers, strategically located in every major global region, deliver the advantages of edge computing, such as faster response times and greater compliance with data residency requirements. Futurex cloud payment HSMs are based on physical counterparts, all of which are designed with inherent FIPS 140-2 Level 3 and PCI PTS HSM v3 compliance, as well as compliance with a broad range of other international standards. The compliance scope that CSU had to contend with was reduced accordingly.

The Futurex/VirtuCrypt cloud payment HSM architecture natively integrates with public cloud providers. This allowed CSU to integrate its payment applications with AWS in a single, smooth process. As far as integration goes, Futurex solutions support all major vendor-neutral APIs, including the RESTful web API, which provided CSU with improved methods of reducing integration effort with other applications (in turn reducing time-to-market for new products and services). Meanwhile, from a management perspective, adopting a single-vendor solution through Futurex alleviated the challenge of managing legacy HSMs from multiple vendors. Using the VirtuCrypt cloud payment HSM service, CSU was able to deploy complete production and testing environments with the same financial issuing and financial acquiring functionality as on-premises models, but with the added flexibility and cost-effectiveness of the cloud.
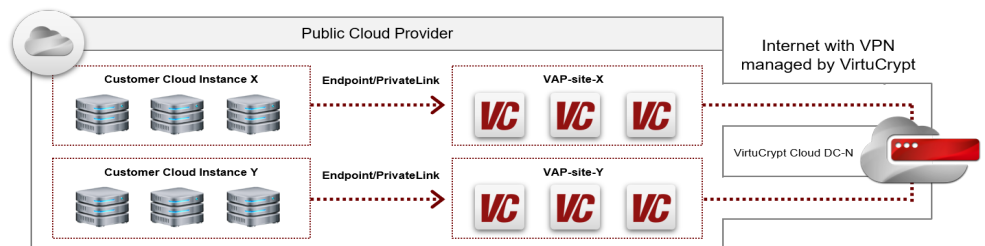
Results

Having found a single-vendor solution easier to manage and integrate, CSU reported a correspondingly lower TCO within about three months. With the full Futurex solution suite available over the cloud, CSU acquired a wider range of cryptographic functionality as well.

Full cloud migration

CSU successfully recentered its production and testing environments around an easily-managed cloud payment core fully integrated with AWS, and fully secured by Futurex cloud payment HSMs. CSU reported an increase in production capacity and a decrease in CapEx.

Maximum scalability

Futurex's industry-leading technology and versatile functionality gave CSU the ability to scale operations up – or down – in the most cost-effective manner. This includes scalable transaction processing, scalable cryptographic functionality for tackling different use cases, and scalable HSM virtualization capabilities.

Development of the new products and services

CSU leveraged its upgraded infrastructure for a new business unit it created specifically to expand BaaS operations. This came shortly after the company had partnered with a major banking platform to facilitate BaaS services. The speed with which the Futurex solution was deployed helped avoid potential setbacks.

Centralized infrastructure management

CSU used the VIP as a single-pane-of-glass management dashboard for their cloud HSM service, allowing them to create, deploy, and manage unlimited cryptographic functionality in flexible configurations. Centralized HSM management grants CSU's new BaaS business unit the ability to share cryptographic resources with other units.

Reduced compliance scope

With Futurex's global data centers and the rigorous physical and logical testing to which its solutions are subjected, as well as audit-friendly management tools in the VIP, CSU found the challenge of meeting compliance requirements much reduced.

Scalability proved to be an invaluable benefit as CSU Brazil is posed to grow into one of the largest organizations in the world to offer banking as a service (BaaS) to its customers, not to mention a variety of other innovative payment services to a diverse range of clients. Using VirtuCrypt and its ability to smoothly integrate with AWS, they can spin up an unlimited number of best-in-class HSMs to fulfill any use case imaginable, on demand.

"CSU Brazil has been a great customer to work with" says Santos Campa, Regional Business Vice President, Enterprise Sales LAC at Futurex. "Their organizational astuteness and forethought of growth led to a swift implementation, and surely positions them as leaders in the industry."

VirtuCrypt

Elements   Enterprise   Plus

Contact Futurex

If you have any questions about this case study, cloud payment HSM solutions, or about any and all things to do with hardware-based cryptography, feel free to contact our team of subject matter experts for more information.

FUTUREX