



Electronic Payment Exchange (EPX) is an international payment platform. They offer payment processing, acquiring, and backend services. EPX and its parent company North American Bancard (NAB) have served clients in diverse markets around the world for over 40 years. Today, EPX is considered one of the most agile payment processors in the United States.



AT A GLANCE:

- ▶ Founded in 1979
- ▶ Controls over a dozen subsidiary companies
- ▶ Client base: small firms up to Fortune 500 enterprises
- ▶ Serves diverse markets, from financial to non-profit

How EPX future-proofed their payment processing infrastructure: a 15 year case study

Enterprise-grade HSM infrastructure

In 2007, Electronic Payment Exchange (EPX) worked with Futurex to deploy a powerful and flexible on-premises cryptographic infrastructure. The international company had recognized that, to remain competitive, it would need to increase processing throughput, streamline the customer experience, and roll out new payment services for its customers. To that end, Futurex provisioned EPX with hardware security modules (HSMs) and cryptographic management tools, which allowed the company to accomplish its existing goals while adapting to meet changing business needs. Over the course of the 15-year partnership between both companies, the level of scalability found in the Futurex solution has helped EPX remain future-proof in a rapidly changing industry.

What does it mean to be future-proof?

For a payment processor, it means your cryptographic infrastructure swiftly adapts to emergent demands. The cryptographic landscape evolves fast, with new compliance requirements to meet, new revenue-generating services to develop, and new security risks to avoid. The ability to meet these challenges – without having to overhaul your infrastructure every few years – is key to an organization's growth in the competitive payments industry.

In short, to future-proof an organization is to plan for it to grow in a secure and cost-effective way, with a strong cryptographic strategy backed by reliable technology. Having been around to observe how technological trends change across 40 years in business, it's what Futurex specializes in.

Payment HSM

Payment HSMs are physically and logically secure devices that encrypt payment data and manage encryption keys. While Futurex offers cloud-based deployment options, payment HSMs are often deployed on-premises as the backbone of IT infrastructure. On-premises payment HSMs are a good option for organizations with legacy HSM infrastructure in need of an upgrade, as well as organizations who want hands-on control over their HSMs.

The performance and versatility of Futurex payment HSMs were what stood out to EPX. Futurex solutions are designed to support the industry's widest range of vendor-neutral APIs, including the RESTful web API, simplifying the integration process. They are also built with inherent compliance with standards like FIPS 140-2 Level 3 and PCI PTS HSM v3. Not only that, but Futurex payment HSMs are capable of the fastest processing speeds, ensuring that organizations have the power they need to remain future-proof.

Payment HSMs normally serve one of two main use cases: card and mobile issuing, and transaction acquiring. Both types are a part of the overall payment journey, where cardholder data is created, issued, encrypted, transmitted, and verified.



Payment HSM Use Cases

Transaction acquiring

The process whereby merchants capture cardholder data, encrypt it, and transmit it through a series of payment gateways and processors, which convey it to the bank which issued the card. The bank validates the data and notifies the merchant as to whether or not the transaction is approved.

- ▶ CVV generation and validation
- ▶ EMV validation
- ▶ Database encryption
- ▶ Mobile payment acceptance
- ▶ PIN translation and verification
- ▶ Point-to-point encryption (P2PE)

Card and mobile issuing

The process whereby financial institutions such as banks and card companies generate cardholder and account data for customers. It entails the secure management of encryption key lifecycles and mobile tokens.

- ▶ EMV key generation & derivation
- ▶ PIN and offset generation
- ▶ Online and mobile PIN management
- ▶ Mobile token issuance (including host card emulation tokens)

Secure code environment (SCE)

Futurex cloud payment HSMs function as secure code environments (SCEs) to allow clients to run tests, build software, and develop prototypes in a cryptographically secured environment.

- ▶ Application testing
- ▶ Software development
- ▶ Rapid prototyping



Cryptographic management tools

Futurex provides 2U rack-mounted servers and portable touchscreen HSM management tools. With these, organizations like EPX can manage every aspect of their cryptographic infrastructure.

Cryptographic management server use cases

Automation: User-defined parameters control how keys, certificates, and configuration settings are managed and synchronized across entire groups of client devices. All through a secure, PKI-based connection.

Centralization: Single-pane-of-glass remote management tablets remove the need to travel between data centers for common tasks.

Backup and recovery: Organizations with multiple backup sites can manage networked devices from a central location.

Audit preparedness: Create authenticated audit log files of all activity and access. The files come in a convenient, exportable format to make internal and external TR-39 audits easier.

Project goals

Long-term compliance

EPX operates internationally, meaning it has to comply with a broad range of compliance requirements. These requirements tend to change with technological trends. EPX needed to make sure that compliance would not be an obstacle as they expanded operations worldwide.

Centralized management

Effective cryptographic management would put true crypto agility within EPX's reach. Such agility comes from effective management.

Using the right tools can help organizations centralize their HSM management, granting them the ability to quickly configure and deploy HSMs, change parameters, and remotely monitor connected devices.

Enhanced functional capabilities

With its existing setup, EPX was approaching the limit of how far it could scale its operations. On one hand, EPX needed better processing throughput. On the other hand, EPX would need to expand cryptographic functionality to address emergent demands over time. This is true scalability, and the crux of future-proof infrastructure.

Single point of integration

Central to EPX's overall strategy was its goal to provide a single point of integration for clients to access their systems. Streamlining integration would simplify (and improve) the client experience.



The solution

Futurex helped EPX deploy the Excrypt series of payment HSMs. The Excrypt series are dedicated payment processing HSMs. They are favored by enterprise clients for their high performance, powerful virtualization, and robust scripting and automation architecture. They support all common APIs within the payment industry, including the RESTful web API, to expedite integration and development.

EPX found the Excrypt Touch cryptographic management device to be essential. The Excrypt Touch is a handheld, touchscreen-equipped device that remotely manages HSM and key management infrastructure from a centralized platform. With granular, user-definable parameters, extensive remote capabilities, and high levels of automation, Futurex management devices helped EPX streamline its remote management capabilities.

Futurex's industry-leading cryptographic solutions have helped EPX stay ahead during their long partnership. EPX has relied on three generations of the Excrypt series, easily upgrading as their business needs changed. Thanks to the shared code base common to Futurex solutions, integrating new solutions required minimal effort. As a result, EPX has seen results throughout their enterprise.

Results

Payment processing HSMs and cryptographic management tools helped EPX future-proof and streamline its data security infrastructure.

Revenue-generating services

The company immediately used its new HSM infrastructure to develop and deploy a first-to-market virtual terminal service, broadening its client base. As demand for this service grew, EPX scaled the processing power of their HSMs, using the Excrypt Touch to organize the project.

Centralized HSM management

A single-vendor infrastructure – managed from a single-pane-of-glass solution – enabled EPX to implement a smooth HSM firmware upgrade to support new key blocking compliance requirements.

Minimized compliance scope

When EPX needed to get their P2P certification, they were relieved to avoid compliance issues. Futurex preemptively designs its HSMs to comply with all major data protection requirements, including PCI HSM and FIPS 140-2 Level 3.

Functional scalability

EPX was able to easily reconfigure and expand its range of cryptographic functionality upon acquiring a succession of subsidiary companies.



Business expansion

EPX's parent company NAB would go on to acquire 12 subsidiary companies throughout its partnership with Futurex. They took advantage of their newfound cryptographic infrastructure to seamlessly scale their HSMs' processing power and range of functionality to meet growing business demands.

Futurex solutions have helped EPX fulfill diverse use cases while scaling to meet emergent challenges for over a decade. In November 2020, EPX was able to take advantage of their Futurex-provided infrastructure even further. The company upgraded its HSM firmware to support new key blocking compliance requirements. It was a smooth process thanks to Futurex HSMs' centralized management platform and user-friendly interface.

Truscott Lee, Director of Operations at EPX, summarized the partnership as follows: "Futurex solutions have ensured that EPX has stayed ahead of the curve in the payments industry. Their innovation and foresight have helped EPX grow with confidence."

Futurex's design philosophy is to anticipate emerging trends within the industry and build solutions that address them. Our solutions are designed for easy integration, broad compliance, and strong performance.

During its partnership with Futurex, EPX has expressed appreciation for the excellent, 24/7/365 customer support of Futurex's Solutions Architects and exceptional Support staff. Futurex's customer-focused approach to cryptographic problem solving, as well as its industry-leading technology, have helped EPX as it has expanded operations and adapted to changing business needs.

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.



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