

A Guide to Network Tokenization



- > Why tokenization
- > The arrival of network tokens
- > Cybersource Token Management Service

Contents



- 3** **Welcome**
[Why are we talking about tokenization?](#)
- 4** **Why tokenization**
[Creating secure and seamless payments is harder than it sounds](#)
- 5** **Payment tokenization**
[How it works, why it's important](#)
- 8** **Cybersource Token Management Service**
[The enormous benefits for business](#)
- 16** **Getting started**
[How Cybersource can help](#)

Welcome



The payments revolution is happening all around us, and it's impossible to ignore. Nor should any business want to ignore it: from the opportunity to serve customers worldwide to the simplicity of going cashless, digital commerce is providing benefits at every level.

Of course, with new opportunities inevitably come new challenges. Customers now expect simple and consistent payment experiences, but payment environments keep growing more complex. And while worldwide digital commerce grew 27.6% in 2020/21¹, 2020 also saw a 20% rise in security breaches.²

But as so often happens, necessity has bred invention. New tokenization technology is fundamentally changing how sensitive payment data are managed.

While solving security challenges, tokenization also helps businesses create seamless payments experiences that are making a material difference to conversion and revenue.

This guide will show you how payment tokenization can benefit your business, and of course, how Cybersource can help.

¹ Ethan Cramer-Flood, "[Global Ecommerce Update 2021](#)" emarketer, Jan. 13, 2021

² Gibson Dunn, "[U.S. Cybersecurity and data privacy council outlook and review](#)" Jan. 28, 2021

Why tokenization

So why is creating seamless payment experiences so hard? The problem stems from the risks associated with sensitive account data.

The current payments ecosystem still relies on customer identifiers consisting of personal account numbers (PANs), billing addresses, expiration dates, and card security codes.



Used online, these account details draw the attention of fraudsters looking for ways to exploit the data on an industrial scale, so businesses must bear the cost of keeping them safe. Equally, if these identifiers are compromised, it's hard for businesses to tell if they're being used legitimately.

The result is that businesses are faced with a no-win situation: decline any transaction that looks remotely suspect and negatively impact sales or accept all transactions and risk fraud and reputational damage.

“Digital commerce presents not only huge opportunities, but also a particular set of challenges: transaction decline rates, online fraud, and the customer’s payment experience. At the same time, keeping up with rapidly evolving technology is becoming increasingly complicated.”

Jignesh Kacharia
Vice President, Product Management
Cybersource

40 billion
Records exposed in 2021³

\$4.35 million
Global average cost, in USD,
of a data breach⁴

³ Cybernews, “[More than 40 billion records were exposed in 2021](#)” Jan. 28, 2022

⁴ Statista Research Department, “[Average total cost per data breach worldwide 2014-2022, by country or region](#)” Sep. 4, 2022

Payment tokenization

Tokenization technology arrived nearly two decades ago and is now at the heart of keeping data secure within the payment process. Almost all businesses currently use tokens to some extent to prevent fraud.

How tokenization works

1. A customer's PAN is replaced with a unique identifier created by a seller's in-house system, an acquirer, or a payment platform.
2. Crucially, the token bears no mathematical link to the PAN and cannot be reverse engineered to uncover the PAN—even if a fraudster gains access to it.
3. The real PAN is stored securely by the acquirer or gateway and is at no point revealed to the seller or used in processing payments.



The concept of using a token to safeguard something of value is nothing new: think of chips in a casino or tokens in an arcade. Payment tokens follow the same principle.

Tokenization means a customer's sensitive account data is replaced with a digital identifier while the real data is stored securely. If the token is compromised, it is meaningless and cannot be used.

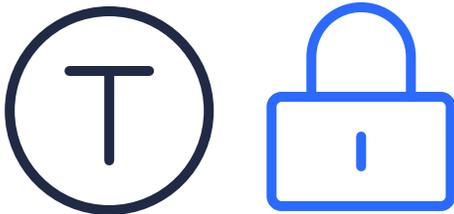
The result is win-win. Customers don't have to worry about their account details being vulnerable online, and businesses don't have to worry about keeping sensitive data safe within their own environment.

The widespread move to tokenization is well underway.

The arrival of network tokens

A major step forward in tokenization has been the arrival of network tokens, which unlock higher authorization rates, lower fraud, and create a better customer experience.

The first payment tokens were issued by sellers, acquirers, or payment platforms for individual credentials. In contrast, network tokens are generated by a payment network such as Visa. Instead of replacing a single PAN for its lifespan, they represent a customer's credentials for the entire buying cycle.



What this means is that, at the point of initial payment, a business can ask the network to generate a token that can then be used (and importantly, tracked) for all subsequent transactions, even if the card has been replaced by the cardholder. The credentials will automatically be updated via lifecycle management, be it for a card or a digital wallet like Google Pay.

This allows businesses to recognize their customers and understand them better, enabling higher authorization rates as well as fraud reduction.

3%

Token auth rate lift⁵
Global average for CNP transactions as compared to PAN.

-26% fraud

Network tokenization can reduce fraud by an average of 26% without creating additional payment friction for your customers.⁶

⁵ VisaNet, Jan-Mar 2022. Visa credit and debit global card-not-present transactions for tokenized vs. non-tokenized credentials. Auth rate defined as approved count of unique transaction authorizations divided by total unique authorization attempts, based on first auth attempt only.

⁶ CNP & CP Average is for set of Token participating Merchants (by Merchant DBA) (PAN & Token)

Network tokenization made easy by Cybersource

Cybersource can accelerate your business's adoption of emerging network tokenization technologies with a suite of fast, comprehensive solutions.

We are a Visa solution with tremendous global scale, serving 190+ countries and territories.



Cybersource acts as a bridge to network tokenization for Visa and Mastercard and will soon include American Express and Discover. Our brand-agnostic global access and network token expertise can help you maximize the benefits of network tokenization, regardless of where you are on the journey.

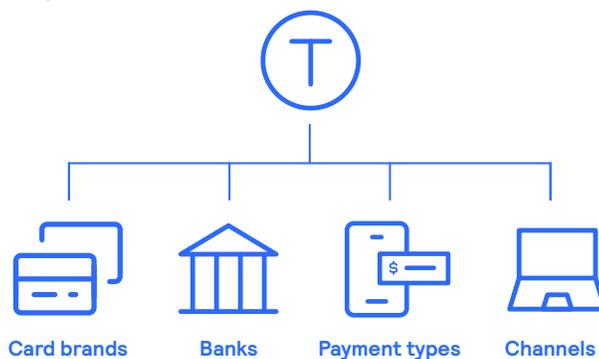
Cybersource Token Management Service



Token Management Service is the simplest way for you to maximize the potential of network tokenization and become an early adopter of new innovations and omnichannel experiences.

The power behind Token Management Service lies in Cybersource's super token, which links network tokens from different card brands (such as Visa and Mastercard), banks, payment types, and channels together.

Cybersource super token



This super token centralizes and simplifies the management of previously separate tokens and payment types, making it possible to create a complete transaction history for each of your customers. You get a 360-degree view of your customers' shopping habits across different channels, and you can make customer loyalty and rewards opportunities part of every online, mobile, and in-store transaction. If you offer multiple card brands you can see a customer's activity across all of them, too.

The super token:

A Cybersource innovation

Cybersource's proprietary network token links payments, customer data, and other network tokens to create a super token.

Links tokens from different networks, issuers, and channels

Includes alternative payments

Creates a unified view of your customers

Makes payments simple and safe

Only Cybersource Token Management Service offers a proprietary network token that links tokens from different networks, issuers, and channels to help resolve the tension between simple payment experiences and complex environments.

Cybersource's super token not only connects data from all card types and issuers, it includes alternative payments such as eCheck in North America, ACH, and other debit products. The super token powers our Token Management Service in managing customer data, simplifying customer models, keeping credentials refreshed, and reducing PCI compliance scope. And it integrates seamlessly with other Cybersource solutions, such as Decision Manager, Payer Authentication, Account Takeover Protection, Recurring Billing, Global Gateway, and others.

Token Management Service improves customer experience by creating a unified view of your customers and their buying behaviors across channels and payment methods, seamlessly updating payment credentials to provide a smooth path to improved conversion.

Using Token Management Service makes payments simple and safe for your customers—no matter how complicated things get behind the scenes.

The benefits of Cybersource Token Management Service



Payment options your customers love

By helping you understand your customers' shopping habits across payment methods, networks, and channels, Token Management Service enables:

One-click checkout options using card-on-file information across different channels.

More ways to pay, including digital wallets, direct debit, Click to Pay, ACH, online bank transfers, international and regional cards, and whatever else is the next big thing.

Personalized payments that use customers' cross-channel payment histories and data to pinpoint their preferred way to pay.

New ways to shop, including buy online, pick up in store (BOPIS), curbside ordering, touchless kiosks, and more.

Safeguard your business

Keep customer data encrypted and secured: Cybersource Token Management Service protects your customers' sensitive personal and card information before, during, and after every transaction.

Tap into the advantages of top-tier, Visa grade security: Store your customers' card-on-file information in Visa's enterprise-level, tier-4 data centers—the highest level of security used for sensitive customer payments data.

Boost revenue

Lift authorization rates: The ability to recognize more legitimate repeat customers is proven to boost authorization rates by an average of 3%, the global average for CNP transactions as compared to PAN.⁷

Reduce fraud: Reduce fraud by an average of 26% without creating additional payment friction for your customers.⁸

Enhance lifecycle management: Optimize revenue using lifecycle management to ensure the latest account information is available via automated updates.

Avoid lost revenue from expired cards: Payment cards are updated seamlessly, providing a smooth path for ongoing authorizations.

Improve customer loyalty strategies: Visibility across channels means you can also reward customers across channels with discounts, loyalty points, and promo codes, driving repeat business and increasing revenue.

Save money

Reduce your PCI DSS compliance scope and costs: Token Management Service meets the strictest regulatory standards for encryption and data security. There's also no need to staff and manage multiple network token systems to prove PCI compliance—almost everything is done for you.

Gain better customer insight: Create a complete, unified view of your customers and their purchasing behaviors so you can give them a personalized experience without a time and resource-intensive effort by your IT department.

Move efficiently toward network tokenization: Accelerate your journey toward network tokenization with a fast, comprehensive solution for adopting Visa Token Service and other network tokenization technologies.

⁷ VisaNet, Jan-Mar 2022. Visa credit and debit global card-not-present transactions for tokenized vs. non-tokenized credentials. Auth rate defined as approved count of unique transaction authorizations divided by total unique authorization attempts, based on first auth attempt only.

⁸ CNP & CP Average is for set of Token participating Merchants (by Merchant DBA) (PAN & Token)

Tokenization is a critical part of a modular solution to combat fraud

Another enormous benefit of Cybersource Token Management Service is that it easily integrates with our other solutions, including Decision Manager, Payer Authentication, Account Takeover Protection, Recurring Billing, Global Gateway, and others. These products, when combined with Token Management Service, create powerful solutions that reduce fraud, increase authorization, and optimize revenue.

Once integrated, our modular services and global reach give you the flexibility to design a tailored experience for your customers, with payments seamlessly embedded.



Modular services include...	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Token Management Service</p> </div> <div style="text-align: center;">  <p>Decision Manager</p> </div> <div style="text-align: center;">  <p>Payer Authentication</p> </div> <div style="text-align: center;">  <p>Account Takeover Protection</p> </div> <div style="text-align: center;">  <p>Recurring Billing</p> </div> <div style="text-align: center;">  <p>Global Gateway</p> </div> </div>
Open integrations	APIs
All channels	<div style="display: flex; justify-content: space-around; align-items: center;">     </div>
Many verticals	<div style="display: flex; justify-content: space-between; padding: 0 10px;"> Retail eCommerce Transit Telecom Restaurant Airline Insurance Utilities </div>
Built on Visa	<div style="display: flex; justify-content: space-between; padding: 0 10px;"> 99.997% uptime⁹ Data-based fraud prevention Global connectivity </div>

⁹ Cybersource enterprise platform uptime based on FY21 internal data, Oct. 1, 2020 to Sep. 30, 2021

Solving your business needs



Business needs...	...solved by Cybersource Token Management Service
<p>Integrating network tokenization into your business</p> <p>I don't want to have to integrate with each major card brand to start using network tokens.</p>	<p>Token Management Service provides network tokenization for Visa and Mastercard, with American Express and Discover coming soon.</p>
<p>I want to process card, non-card, and alternative payments using the same token.</p>	<p>Token Management Service provides a single customer token for all payment methods.</p>
<p>I want to change processors or acquirers without having to update my token or import/export payment data.</p>	<p>With Token Management Service, tokens stay the same in your systems, even if you change acquirers/processors.</p>
<p>I need a token solution that supports all my existing processors and acquirers, so I don't have to change my tech and bank relationships.</p>	<p>Our solution provides a unifying layer for all your existing payment tokens and/or gateways, enabling them to coexist in a single payment environment.</p>
<p>I want a single token to work across multiple acquirers and regions.</p>	<p>Token Management Service works across multiple acquirers and regions using a unified token from your system.</p>
<p>I want support with our PCI assessments so we can keep up and not get fined.</p>	<p>Token Management Service maintains PCI DSS compliance to reduce your audit time and ensure full compliance.</p>

Business needs...	...solved by Cybersource Token Management Service
Integrating network tokenization into your business	
I want to remove payment data from my system, so we don't get breached.	Token Management Service is cloud-based, with data stored in Visa's tier-4 data centers.
I want a token solution that bridges across vaults that were used for eCommerce and card-present separately.	Token Management Service supports a seller-wide vault, irrespective of channel and with access provisioning by business unit, if needed.
There are still parts of my ecosystem that need PAN, like our call center. How will that work?	Token Management Service can return the last 4 or 6 numbers of a PAN, as well as full PAN decryption if specifically approved by your business.
Increasing revenue capture	
I want to stop getting declines due to expired cards, invalid account numbers, and CVV2 failures.	Token Management Service includes Cybersource Account Updater, which updates card details automatically for better lifecycle management and increased revenue.
I want to maximize successful authorizations for customer purchases.	Token Management Service is the fastest way to connect to Visa Token Service—which uses network tokens to obtain more data from the issuer during tokenization for a more trusted payment credential.
I want to reduce recurring billing and card-on-file interruptions for seller-initiated scheduled payments and customer-initiated payments.	Token Management Service provides the merchant-initiated transaction (MIT) and cardholder-initiated transaction (CIT) protocols (on supported processors) to reduce declines for network tokens using credentials-on-file.
Offering extra flexibility for customers	
I want to process payments and returns across all channels and locations using a single token.	Token Management Service comes seamlessly integrated with Global Gateway for payment processing and can also support in-person payments.
I want to allow online purchases with in-person pick-up (BOPIS) using a single token.	With Token Management Service, a single token works across channels, even with separate acquirers/processor platforms for purchase and pickup.
I want to allow online purchases to be returned at retail locations, and vice versa.	Token Management Service allows returns to an original or a new payment method securely through a unifying token.
For goods not in stock in-store, I want to take payment in-store and deliver the goods to the customer's home.	Token Management Service links across channels, allowing back-end fulfillment systems to complete a store-originated purchase with a token.

Business needs...	...solved by Cybersource Token Management Service
Offering extra flexibility for customers	
I want to offer new digital experiences for my customers, like curbside pickup, mobile key check-in, grab & go, biometrics/face-to-pay, fob, chat bot, etc.	When payment credentials are tokenized, businesses can innovate customer experiences and journeys.
I want to track customer reward/loyalty programs and see purchasing behavior with a single identifier.	Token Management Service can show a customer's loyalty and reward signups and usage.
I want to sign customers up online and in person for recurring services through a subscription.	Token Management Service can be used as a stored credential for recurring subscription billing.
I want to let my customers place an order using Alexa or Siri.	Token Management Service tokens can be used by partners who enable IoT commerce, without exposing card details to third parties.
I want to be able to see a customer's purchasing behavior across channels.	Token Management Service isn't limited by channel and can identify customers and their purchases across channels.
I want to leverage a customer's purchasing activities for more targeted marketing.	Token Management Service can provide omnichannel reporting on purchasing behavior.
After an order is placed, I want my customer to be able to make changes that may require follow-on authorizations.	With Token Management Service, a single token can be used to re-authorize a payment instrument or partially refund from another internal department (like distribution systems) without any impact on the customer.

Getting started

Cybersource Token Management Service can support all your existing processors and acquirers across the globe. You won't have to change your tech and bank relationships to implement tokens.

From start to finish, you'll have a dedicated support team on hand to help:

Getting started

- Implementation Specialists
- Technical Account Management
- Enablement Team

Innovation solutions

- Development and Test Engineering Team
- Technical Product and Business Solutions Team
- Acquiring Solutions Team

Adapting and growing

- Product Innovation and Strategy Team
- Architecture Team
- DevOps and Release Management Team

Ongoing support

- Product Innovation and Strategy Team
- Architecture Team
- DevOps and Release Management Team



Let's talk tokens

If you'd like to discuss how tokenization can enhance your business, and how Cybersource can help, let's talk.

[Contact sales](#)

