

# paladin vendor report | **payment systems**





Welcome to the 2021 the Paladin Payment Vendor Report.

The mission of the Merchant Risk Council (MRC) is to provide members with useful tools and hard-to-find information that's critical to managing payment infrastructure and improving the customer purchasing experience. At the MRC, we understand how difficult it is to navigate a complex ecommerce environment and find the right solution for specific payment needs. As a benefit of your MRC membership, we are offering members a discounted copy of the Paladin Vendor Report (PVR).

The PVR, gathered by the industry experts at Paladin Group, provides detailed information about seven top Payment Switch vendors who offer a wide variety of different tools, platforms, and services. This report is designed to give you a comprehensive overview of the different products offered by each company—and to present analysis to help you focus on who may ultimately best align with your organization's payment management goals.

We hope you find this report to be a helpful resource that will provide you and your business with valuable insights. We are also interested in hearing your feedback on the report and encourage you to send any comments directly to [programs@merchantriskcouncil.org](mailto:programs@merchantriskcouncil.org).

Sincerely,

The MRC

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Every day, we at Paladin Group are in the thick of the fast-paced world of fraud solutions. After all, ecommerce fraud is the top payments challenge according to the Merchant Risk Council's Global Payments Survey. Payments and fraud have never been more intertwined since more companies are deploying omnichannel solutions and Europe's strong customer authentication mandate is now in effect. That's why we've enlisted the authors of this report, Retail Payments Global Consulting Group, to help map the current payments technology ecosystem.

2020 unveiled paradigm shifts in how payments products are sold to merchants. "Payments orchestration" became an SEO buzzword. Payment Service Providers (PSPs) continue to tout their smart routing engines, network token services, and decline retry capabilities.

While the years go by, one constant remains true, no one single vendor can fully service every market. Most enterprise merchants will use a combination of the vendors featured in this report, whether they be PSP, gateway, billing engine, token vault, or payments orchestration platform.

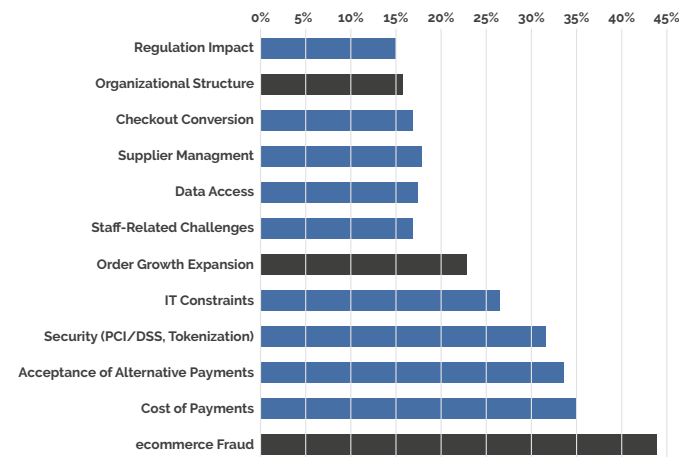


Figure 1: Payment-Related Challenges Ranked

Source: MRC and Cybersource's Payment Management Strategies of Forward-Thinking Global Merchants Global Payments Survey.

As demonstrated by Figure 1, merchants' top payments challenges are the cost of payments, the acceptance of alternative payments, security, and IT constraints.

Thanks to a fragmented token environment from providers and continuously changing card scheme compliance requirements, the

We focused on several key areas during the discovery process. (Not all are applicable to every vendor, but for consistency, we examined each of the following wherever relevant.)

## FUNCTIONAL ARCHITECTURE -

What the platform's capabilities are such as transaction types and value-added services.

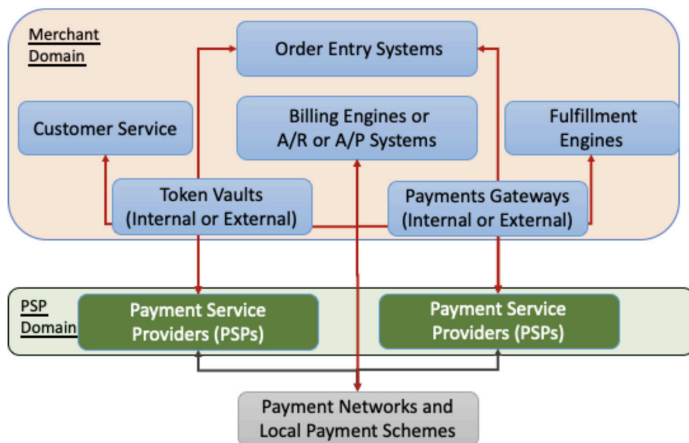
**TECHNOLOGY** - The platform's physical attributes such as technologies used, locations, and APIs.

**CUSTOMER SUPPORT** - What self-service tools and account management availability augment the platform.

**PRICING MODEL** - Usage of the platform is typically billed in either a per transaction, subscription, or licensee fee.

challenges of implementation and maintenance have also increased. Operating payments within multiple merchant systems creates a complicated web of interactivity just to maintain a single PSP relationship and handcuffs operations (see Figure 2). This type of environment is not the best practice, regardless of whether it's built or bought.

Figure 2: A Complicated Web of Payments Interactivity



Source: The Need for Payments Orchestration. Presented to Merchant Advisory Group Dec. 2019 by Rene Pelegero (RPGC Group) & Suhil Srinivas (LinkedIn).

The companies featured in this report help merchants address those concerns. We see three philosophies at work: pure technology plays, pure Payment Service Providers, and hybrids.

In previous versions, this report has solely focused on Payment gateways/switches/hubs. They were pure technology plays. These platforms now assume a new moniker: payments orchestration platforms, or POPs. To meet our definition of payments orchestration, the platform must support all processing connections through a single API, support dynamic routing (also known as cascading) without additional code, provide an end-user tool to configure routing rules, and provide the necessary data elements to log and audit the state of each transaction. POPs argue that their solutions are the most straightforward and that the best architectural solution is to abstract the payments layer to the periphery of the core technology stack. These vendors only provide technology and do not assume financial ownership of the transactions on their platforms.

Payment Service Providers address the other two other approaches of increasing authorization approval rates and lower payments costs. For simplicity moving forward, any entity that takes fiduciary responsibility of transaction processing such as an acquirer, a third-party provider, or a payment service provider, will be referred to as a PSP. PSPs have worked for years to create solutions to provide all services to all merchants. For the first time they are now featured in this report.

PSPs provide a vital role to the payments ecosystem. Enterprise merchants still need a great deal of the functionality PSPs employ today. But PSPs have demonstrated economic bias to control all of their clients' volume. This has led many merchants frustrated by their providers when they need a specific connection or license that then forces the merchant into a new configuration to achieve PCI compliance and reconciliation.

The highly-respected and appropriately staffed merchants partner with several PSPs in order to maximize market coverage and mitigate the potential damage outages and fraud can create. Thus, the term "layered approach" isn't just for fraud anymore. PSPs like Checkout.com, Nuvei, and Fiserv recognize this fact, and have opened up their platforms to meet this market demand as they seek to straddle the line between a walled garden and an independent orchestration platform. This new hybrid approach is what opened the scope of this year's report.

In addition to the term PSP, there are some other formatting and acronyms to keep in mind for this report.

- API - Application Programming Interface
- SDK - Software Development Kit
- POS - Point of Sale
- APM - Alternative Payment Method
- PAN - Primary Account Number

- CNP - Card Not Present
- PCI - Payment Card Industry Data Security Standards
- SAQ - Self-Assessment Questionnaire
- 3DSX.X - 3D-Secure version X.X
- HSM - Hardware Security Module
- UUID - Universally Unique Identifier
- SLA - Service Level Agreement

Any text in **this\_format** or **thatFormat** represents specific code or data fields.

The vendors featured in this report seek to address the challenges of safely managing a global payments platform. Each platform is reviewed for functionality, technical capabilities, customer service, and pricing model. These considerations are top-of-mind for any merchant deliberating the "build or buy" question.

Neither Paladin nor RPGC has written any opinions, given any reviews, or displayed any thumbs-up (or down) about the vendors contained in the report. This report is not designed to rate the products and services of the vendors—its intent is to provide clarity regarding the products and services available.

We've prepared materials on 36 companies providing services in this space. Each vendor had the option to participate in the report, and we were compensated for our time by those who elected to participate. Our team spent hours in discussion with each of these

participants. We test-drove their products and gathered overviews of their services, marketing, sales, technologies, products, and future plans.

For vendors who chose not to participate in the report, we drew upon client input, research, and interview where available to share a summary of their services. If a vendor did not have publicly available API documentation nor made themselves available for a demo, they were not included. This report documents an effort to gain as much first-hand knowledge as possible from payment switch vendors, compiling our findings in a way that's helpful and revolutionary for our industry and the merchants who depend on us.

## Core functionality icon key



**Dynamic Routing**—Also known as Cascading or fallback routing. The ability to reroute a transaction from one acquirer to another without notifying the customer of an issuer decline

**Smart Routing to Maximize Approvals**—The ability to supply their own proprietary algorithms to route transactions to maximize authorization approvals on a Client's behalf without the need for further code development.

**Smart Routing for Least Cost**—The ability to supply their own proprietary algorithms to route transactions to maximize cost savings on a Client's behalf without the need for further code development.

**Configurable Transaction Routing Tool**—The ability to expose business-user friendly tool to route transactions using arbitrary business logic in the Client dashboard. This means users can develop decline retries trees or logic to route transactions according to transaction attributes without the need for additional programming.

**Dynamic Statement Descriptor**—The platform allows clients to configure descriptors presented on a customer's card statement on a transaction by transaction basis

**Split Tender Transactions**—The ability to receive a single payment request from the merchant and split it into multiple transactions using different cards, payment methods or loyalty programs. While partial authorizations are a form of split tender transactions, only the platforms that enable a transaction using multiple instruments qualify for this criteria.

**Partial Captures**—The ability to submit the same transaction for clearing multiple times for customizable amounts.

**Reporting**—The provider offers a dashboard or API that can be used to analyze activity in a Business Intelligence tool.

**Passess Raw Issuer Decline Codes**—The platform's API returns the issuer's decline codes without normalizing the response codes or obfuscating them under technical error codes.

**Automatic Reversals**—The ability to automatically initiate the release of an authorization upon arbitrary criteria before capture.

**Supports Push Payments**—The ability to disburse payments to bank accounts, e-wallets, and payment cards OR the ability to accept payments using the Request-To-Pay protocol.

**Custom Alerts**—Platform has the ability to send Client notifications when Client-set business rule thresholds are exceeded

**Provides Endpoint Latency**—The ability to report an API endpoint latency in milliseconds and use that latency as a routing rule.

**Ingests and Consolidates Settlement Reports**—The ability to normalize data from various reports and displays to user in a single interface.

**Network Token Requestor**—Certification with at least one EMVCo member's Token Requestor programs to request and share network tokens across multiple Clients and partners. Vendor must also be capable of storing and transmitting Payment Account Reference number to Clients.

**Tracks Event States**—The platform leverages real-time ledgers or event states as a means of tracking a transaction through the platform

**Account Updater integration**—The platform is able to perform Visa Account Updater and Mastercard Billing Updater regardless of the client's acquirer agreements.

**Dynamic Payment Method Presentation**—The ability to selectively present specific payment methods on the checkout page to the end-customer by product type or geography to maximize checkout conversions.

**A/B Testing Suite**—The platform provides clients a tool to make and track payments related tests.

**Homegrown 3D-Secure 2 Server**—Vendor has developed its own EMVCo certified 3D-Secure 2 Server.

**Homegrown Fraud Decision Engine**—The company also offers a fraud mitigation platform that is integrated or developed into the platform.



Global full service PSP **Checkout.com** enables merchants to process and settle card payments, bank transfers, and alternative payment methods through a single unified payments API. The **Payments Platform** is built on proprietary in-house technology. This allows **Checkout.com** to streamline payments by combining the acquirer, gateway, and processor capabilities through their single platform. **Checkout.com** clients can get direct local acquiring, where they want to scale globally and are able to offer the optimal mix of payment methods for each region that they operate in— from local cards and APMs to international cards or digital wallets.

**Checkout.com** endeavors to support global enterprises solving complex payment challenges simply. This is reflected in its accessible APIs which are useful and usable allowing clients the means to quickly integrate related systems without compromising performance or functionality during updates. Clients can access their transaction data at a granular level in near real-time, leading to insights that positively impact revenue.

**Checkout.com** is committed to future-proofing its solutions by responding to regulatory changes ahead of time and offering the latest essential APMs and local cards.

Profitable since launching in 2012, **Checkout.com** now employs over 1,000 people across 17 global offices including San Francisco, New York, Berlin, Paris, Dubai, Singapore, Melbourne, Hong Kong, and its headquarters in London. It is a principal card scheme member with the necessary money institution licenses in Europe, the U.K., Brazil, Hong Kong, Singapore, Australia, and New Zealand. **Checkout.com** continues to seek additional licenses in key jurisdictions to ensure true global coverage. In 2019, **Checkout.com** was authorized as an Electronic Money Institution by the French Prudential Supervision and Resolution Authority, ensuring no service disruption in the European Economic Area due to Brexit. Merchants with continental European entities will also avoid interchange increases imposed on



### At a Glance:



Dynamic Routing



Smart Routing to Maximize Approvals



Smart Routing for Least Cost



Configurable Transaction Routing Tool



Dynamic Statement Descriptor



Partial Captures



Homegrown 3D-Secure 2 Server



Automatic Reversals



Supports Push Payments



Ingests and Consolidates Settlement Reports



Network Token Requestor



Account Updater Integration

British entities due to Brexit. In 2020, **Checkout.com** acquired ProcessOut, enabling the highly advanced smart routing solution within the core offering.



Figure 1: Checkout.com in the payments ecosystem

In January of 2021, **Checkout.com** announced their \$450 million Series C fundraising round, tripling the value of the business to USD \$15 billion. With a total of \$830 million raised within the last two years, **Checkout.com's** readily available cash represents one of the strongest balance sheets across all global fintechs. This further strengthens the company's resilience as a regulated entity in numerous markets and as the financial partner to its merchants. It also allows for continued strategic investments and product developments, like the **Payouts Platform** solution which saw exponential growth over the last year. **Checkout.com** currently provides payments services for Coinbase, Pizza Hut, Grab, Klarna, Farfetch, Transferwise, Deliveroo, and eToro. In addition

to these merchants, **Checkout.com** also provides the payments infrastructure for many well-known fintechs, including Revolut and TransferWise.

## Functional Architecture

The **Payments Platform** has been built on purpose-built modular technology so that merchants can create the right solution to fit the unique needs of their business. The core of the platform has been developed in-house.

Merchants get access to the entire catalog of local and international cards, APMs, and digital wallets through a single **Unified Payments API**. It enables clients to build one integration and get access to **Checkout.com's** local acquiring licenses and payment methods. **Checkout.com** either owns or can provide acquiring BINs in over 50 countries to boost the approval rates across most regions around the world.

**Checkout.com** also offers advanced treasury management capabilities. Through a customizable currency pair setup, transparent FX pricing and reporting, and local currency treasury management capabilities, **Checkout.com** gives merchants the control, strategic support, and flexibility to optimize the cost of FX.

To overcome the limits of existing cross-border payment systems, merchants can harness the **Unified Payments API** to make

seamless, real-time payouts directly to recipients' cards or bank accounts globally. Payouts are designed to improve approval rates and manage costs by using the built-in FX capabilities that enable merchants to present the FX rate on the payment page or can be applied to an invoice automatically per the merchants' payout flow requirements. Using **Payouts Platform**, merchants can compliantly send money to recipients in 170+ countries and territories, in any of 100+ currencies, without worrying about hidden fees or managing duplicative, custom integrations to local payment networks.

**Payouts** to cards are live today through Visa and Mastercard's push products. **Payouts** directly to bank accounts are also live.

The cloud-based **Payments Platform**, also provides additional services to improve payment performance. **Checkout.com** has an EMVCo registered **3D-Secure 2.1 Server** that can be used to conduct 3D-Secure transactions without requiring **Checkout.com** to process the authorization. Fallback to 3DS 1.0.2 is also available. The single API simply returns the ACS provisioned authentication response that can be passed along to the relevant acquirer (if not **Checkout.com**) for processing. Further, **Checkout.com** will bring a delegated authentication solution to market in 2021.

Visa and Mastercard recognize **Checkout.com** as a network token partner. **Checkout.com Tokenization** digitally replaces card details for tokens, with no exploitable value, and can also store bank account information in a secure **Vault**. **Checkout.com Tokenization**

can provision merchants with a unique token identifier regardless of backend acquirer or payment method. Customer credentials are captured using hosted iFrame fields, which will be covered in further detail in the Technology section.

**Checkout.com's Card Verification** automatically handles the logic to accept and verify a cardholder's payment information without actually billing the customer for a charge (e.g., when to perform a \$0 or \$1 authorization).

With smart routing, merchants will have the ability to manage routing by MID by the end of 2021. Merchants will be able to route transactions based on indicators such as BIN, card brand, etc. with the use of User Defined Fields. **Checkout.com** routing can also facilitate PANs passing to non-**Checkout.com** acquirers. Merchants can auto-cascade transactions, deferring to a second acquiring option if there's a failure with the first.

**Checkout.com** offers a **Risk Rules Engine** to help fine-tune customers' fraud protection by creating negative list using a range of attributes. It is then possible to compare and intercept behavioral patterns that are likely to represent fraudulent activity. In addition to CVV and AVS, parameters can be configured around velocity, value thresholds, device fingerprint mismatches, and verified information mismatches. Suspicious transactions can be flagged for manual review and will not be auto-captured even if the feature is toggled

on for all transactions.

**Checkout.com** is also launching their advanced **fraud solution**, an in-house built machine- learning driven fraud tool. It will include pre- and post-authorization scoring and decision capabilities including allow- and block-listing, customizable rules, scoring, routing, and manual review.

The **Disputes** management tool helps merchants more easily protect themselves against chargebacks. The workflow functionality helps merchants to manage and resolve disputes by providing evidence and tracking progress in real-time. It also comes with a file uploader to provide for easier submission of evidence.

Clients have three options for accessing reports in order to reconcile payments processed via **Checkout.com**. Firstly, financial data is available on demand via the user **Dashboard** from which the merchants can download the relevant report for their reconciliation action. Merchants with the appropriate development resources can access the data via API directly into their internal systems. SFTP access is also available, for merchants to access manually or through an automated process.

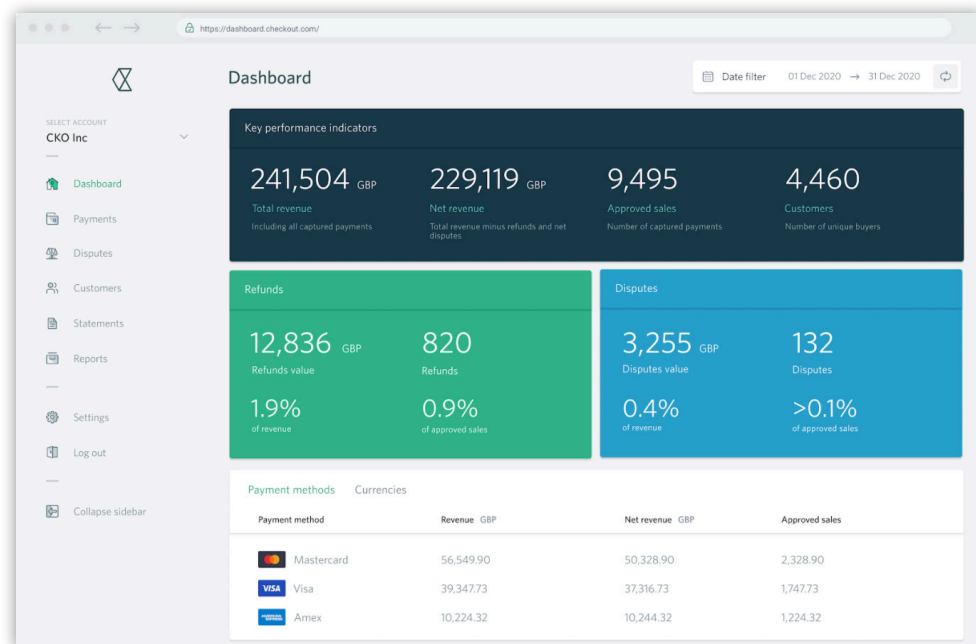


Figure 2: Checkout.com Merchant Dashboard

**Checkout.com's** reconciliation reporting gives clients a detailed view of every transaction, every payment method, by every customer, in every market for specified time periods. A merchant can report at a summary, transaction, and transaction-event level, receiving a detailed breakdown of every fee tied to the transaction to help understand the true cost of payments.



## Technology

Based on the specific needs of the merchant, there are five ways to connect into **Checkout.com** to process payments.

1. The most straightforward integration is [Hosted Payments](#), simply a **Checkout.com** hosted payments page.
2. [SDKs](#) for iOS and Android keep PCI compliance requirements from reaching SAQ-D requirements on mobile transactions. Libraries are also available in Java, .NET, PHP, Python, Ruby, and Node.js.
3. The **single payments API** is available for merchants and payment facilitators that already have PCI controls in place and want to build their own customized end-to-end payments experience.
4. For those who are not PCI compliant, [Frames](#) offers fully customizable **Checkout.com** hosted iframes that are embedded into a merchant hosted checkout page. The SDKs leverage **Frames** in order to reduce PCI burden. In addition to color and styling changes to the fields, merchants can also choose to display one input field or several.
5. **Checkout.com** also has pre-built integrations with major ecommerce platforms like BigCommerce, Commercetools, SFCC, SAP, and recurring billing platforms like Zuora and Chargebee.

To achieve full functionality of the **Payments Platform**, merchants need only to connect into the **Unified Payments API** to process transactions and the **Reconciliation API** to feed their own data lakes. Objects are formatted in JSON and use REST principles.

**Checkout.com** operates in two different data centers operating "hot-hot" on a public cloud in Europe with infrastructure and services then scaled across multiple geographical locations to mitigate against system downtime and achieve the strongest payments performance possible. **Checkout.com** works to route transactions across zones and data centers to minimize the potential for service outage during system enhancements or repairs. The business is continually optimizing this technology to enhance performance, including adding new data center instances in the U.S. and Singapore.

As performance and reliability are key to **Checkout.com's** business, a comprehensive security information and event management (plus AI-powered anomaly detection) is in place to track for suspicious activity. **Checkout.com** has a key focus on preventing downtime by supporting multiple instances of each service to provide extra resilience.

**Checkout.com's** global cloud-based payments infrastructure is built to allow for continual product and technology enhancements to better serve merchants, while limiting any potential downtime.

Their technology is built using multiple production environments to allow for control and flexibility, while meeting a zero downtime requirement.

**Checkout.com's** modern payments technology was built to allow for continual product additions and global expansion without the need for a merchant to reintegrate with the platform in order to access the latest product features or expand to new markets. A key technical element of this is that their **Payments Platform** is asynchronous and multi-tenant. For example, the asynchronous design allows **Checkout.com** to quickly add payment methods to their core platform without additional fragmentation. This also allows **Checkout.com** to offer features to manage regulatory requirements including 3DS2 and SCA authentication seamlessly and without requiring additional integration work.

## Customer Support

Partnership is at the core of all of **Checkout.com's** customer support. Each merchant is provisioned with a dedicated local **Customer Service Manager** who has deep expertise in the business, operational, and technical aspects of the **Payments Platform**, the industry, and market that the customer operates in. With access to local expertise, and on-the-ground presence in key major markets, **Checkout.com** is able to run regular

workshops. And they can conduct regular calls to review the merchant payment flow, assess data to uncover new opportunities, support product enhancements planned by either party, provide detailed reports observing potential issues and resolutions, complete research requests, and discuss the ongoing status of new projects. With regular business reviews, **Checkout.com** helps drive value to the merchant by uncovering new avenues for growth and opportunities to continue optimizing their payments.

During integration, each new merchant is allocated a dedicated **Implementation Engineer** and a **Solutions Lead**. The dedicated teams' primary goal is to ensure that they have the optimal setup within the **Checkout.com** environment so that the modular advantages of the **Unified Payments Platform** meets their business needs. The **Implementation Engineer** helps drive the technical scoping conversation to determine the integration method that best fits the client's needs. The **Implementation Engineer** is able to educate the merchant as needed on the product and provides them with access to documentation, sample code, SDKs, and a Sandbox test account.

The dedicated team of the **Customer Service Manager**, the **Implementation Engineer**, and the **Solutions Lead** are available to support the merchant with any requests during the integration period. And a series of scheduled follow-up technical assistance calls are set up should they be required. The dedicated support

continues all the way through the series of production tests that are run. Following these tests, the team will switch the merchant to live traffic. Once the integration has been completed, this is the team that reviews the integration and signs off the integration on Sandbox.

But really this is just the beginning of the relationship; the dedicated **Customer Service Manager** will continue to be available to the merchant and help ensure that optimal solutions are achieved for the merchant's business needs. They are located in the nearest timezone and have deep expertise on the region where the merchant operates. This local support model incentivizes merchants to see **Checkout.com** as a partner rather than a vendor.

**Checkout.com's** dedicated fraud analytics team keeps a close eye on any fraudulent activity, continually evaluating patterns and trends. The **Checkout.com Daily Fraud Monitoring Report** identifies high-risk offenders and passes this information along to merchant merchants to update their risk rules and blocklists as necessary.

Beyond that, **Checkout.com** also provides educational pieces around industry and market intelligence. **Checkout.com's** industry experts and thought leaders create and moderate the following content:

- One-to-one workshops and learning experiences led by **Customer Success Managers**, and often in partnership with product managers or customer success leaders

- Monthly newsletters with key upcoming regulatory events
- A payments bulletin
- A series of roundtables and webinars to allow collaboration and learnings across merchants and different solution providers, such as card schemes and issuers
- Published industry reports on a regular basis that evaluate the behaviors of consumers and the impact that these behaviors have on end customers and the wider payments industry
- Educational talks sharing learnings with the wider community

## Pricing Model

**Checkout.com** prices merchants on an Interchange++ pricing model. They find that Interchange++ provides merchants with transparent card scheme fees, processor fees, and interchange fees so that merchants can detail the cost of each transaction.

There are strictly no setup fees, monthly fees, or any other kind of fixed cost element. Token transfers (if ever required), tokenization, hosted solution, and webhooks are also free of charge.





Paladin would like to thank all of the participating vendors for their time and availability during the discovery and post-writing processes. We also would like to remind all readers of this report that they can email us at [info@paladinfraud.com](mailto:info@paladinfraud.com) to let us know which vendors they would like to see participate in the report next year.