Contactless Payments Introduction

For Transit Providers interested in the Payment Acceptance Devices & Transit Processor Services Master Service Agreements

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To Union Station

Payment systems today

Paying for coffee

From a transit rider's perspective, **paying for transit should be as easy as paying for a cup of coffee:** Whether ordering a latte, a cold brew, or a matcha green tea, customers know they can instantly pay by tapping their contactless bank card or smart device, no matter which coffee shop they visit.

Paying for transit

Today in California, though, riders can't pay for transit like coffee. Instead, they typically pay in cash or with a reloadable transit fare card. They need to know the fare in advance and make sure they have enough money in their pocket or loaded onto their card before boarding.

How to sell transit like coffee

Letting riders pay their fare using what's already in their pockets saves time and money, while reducing operating expenses for Transit Providers.

How can you bring the ease and convenience of paying for coffee to transit?

Components of contactless fare collection

What you need to enable contactless fare collection

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How does a customer pay for coffee?

There are three main components to contactless payments at a coffee shop:

REGISTER

Point-of-sale (POS) terminal reads contactless payment cards and smart devices.

PRICE MENU

Barista enters the customer's order and amount to charge into the register/POS system.

PAYMENT PROCESSOR

Back-end software transfers funds from customer's account to the coffee shop's bank account.

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What do providers need to make the switch?

Making the switch to contactless is easy. Transit Providers just need to acquire up to three new pieces of technology:

FARE VALIDATORS

Onboard or on-platform devices that are equipped to read riders' contactless bank cards and smart devices.

FARE CALCULATION SOFTWARE

Software that instantly determines the correct fare for a trip based on distance, applicable discounts, and frequency of travel.

PAYMENT PROCESSOR

Software embedded in fare validators that transmits money from a rider's bank card to the Transit Provider.

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Benefits of contactless fare collection

🚌📊 Higher ridership

People will be more likely to choose transit when they can use what's already in their pockets to pay the fare.

> **London Underground** ridership **grew over 4%** in a year after going contactless.

💲 Lower overhead

Transit providers using legacy fare media (cash, paper tickets, regional fare cards) spend a large portion of each revenue dollar on fare collection.

> **Washington, D.C.,** saves **6¢ per dollar** on fares collected by bank card instead of cash.

🚌 Faster boarding

Contactless fare collection reduces dwell time and speeds up transit.

> **Tapping to pay** on buses saves **~1.75 seconds/passenger** vs. cash and **~2.25 seconds/passenger** vs. swipe cards.

😄 Happier riders

Contactless fare collection improves rider convenience, especially for those unfamiliar with local fare policies.

> The first 10 weeks of **New York's** contactless payment program saw one million taps, with **80% from smartphones**.

⚖️ Fairer fares

Contactless fare collection can help Transit Providers achieve social equity objectives: It enables fare capping, providing riders with weekly and monthly discounts without the up-front costs of an unlimited-ride pass. Reloadable prepaid debit cards offer an affordable way for riders without bank accounts to pay contactless fares.

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What actually happens when a rider taps to pay for transit?

Elements of contactless fare collection
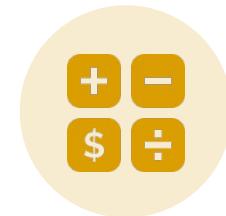
Sending fares from a rider's contactless card or device to a Transit Provider involves eight key entities:

Rider

Fare Validator

Fare Calculation Software

Payment Processor

**Payment Network (Visa/Mastercard)**

Rider's Bank
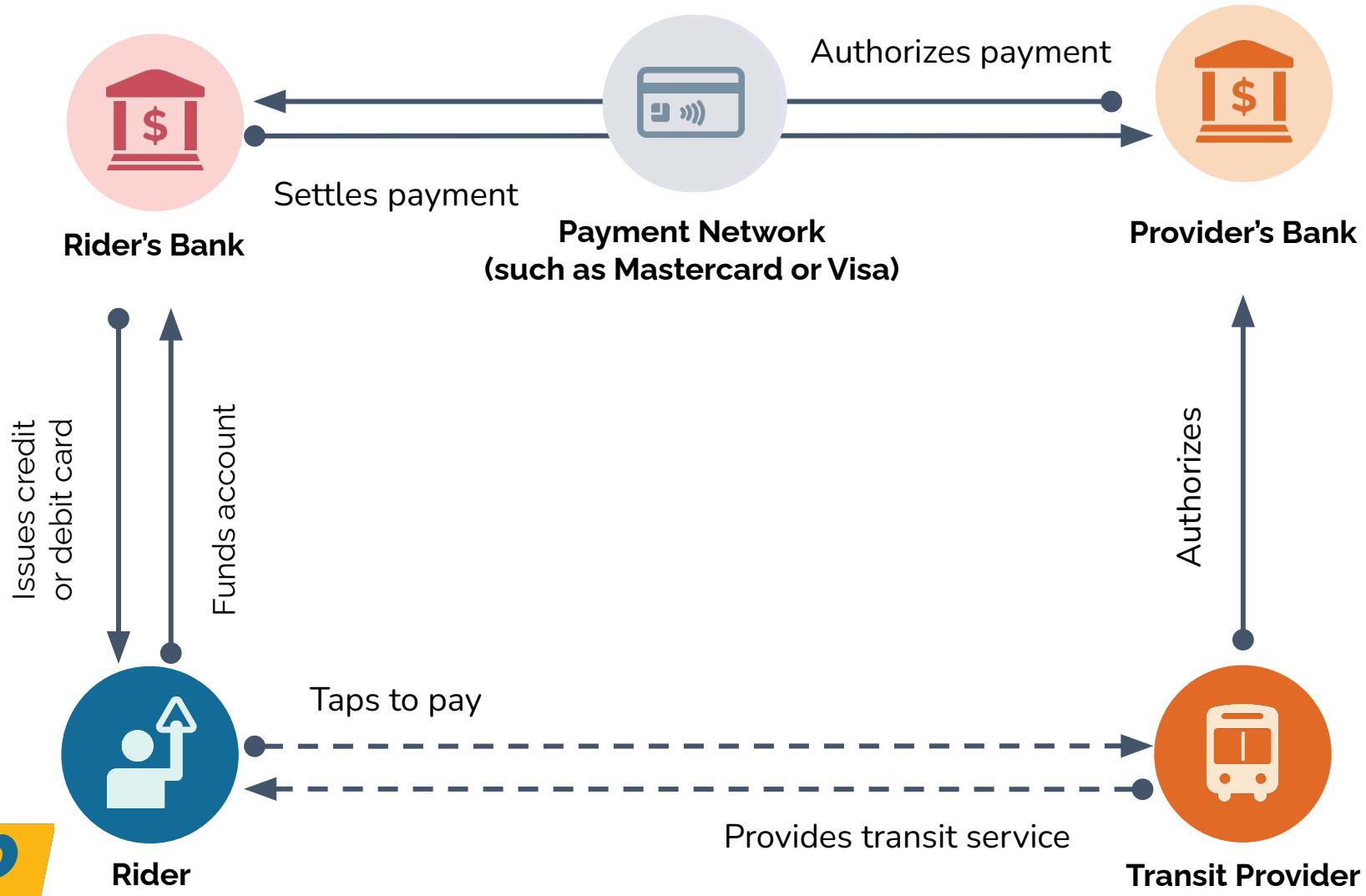
Provider's Bank

Provider

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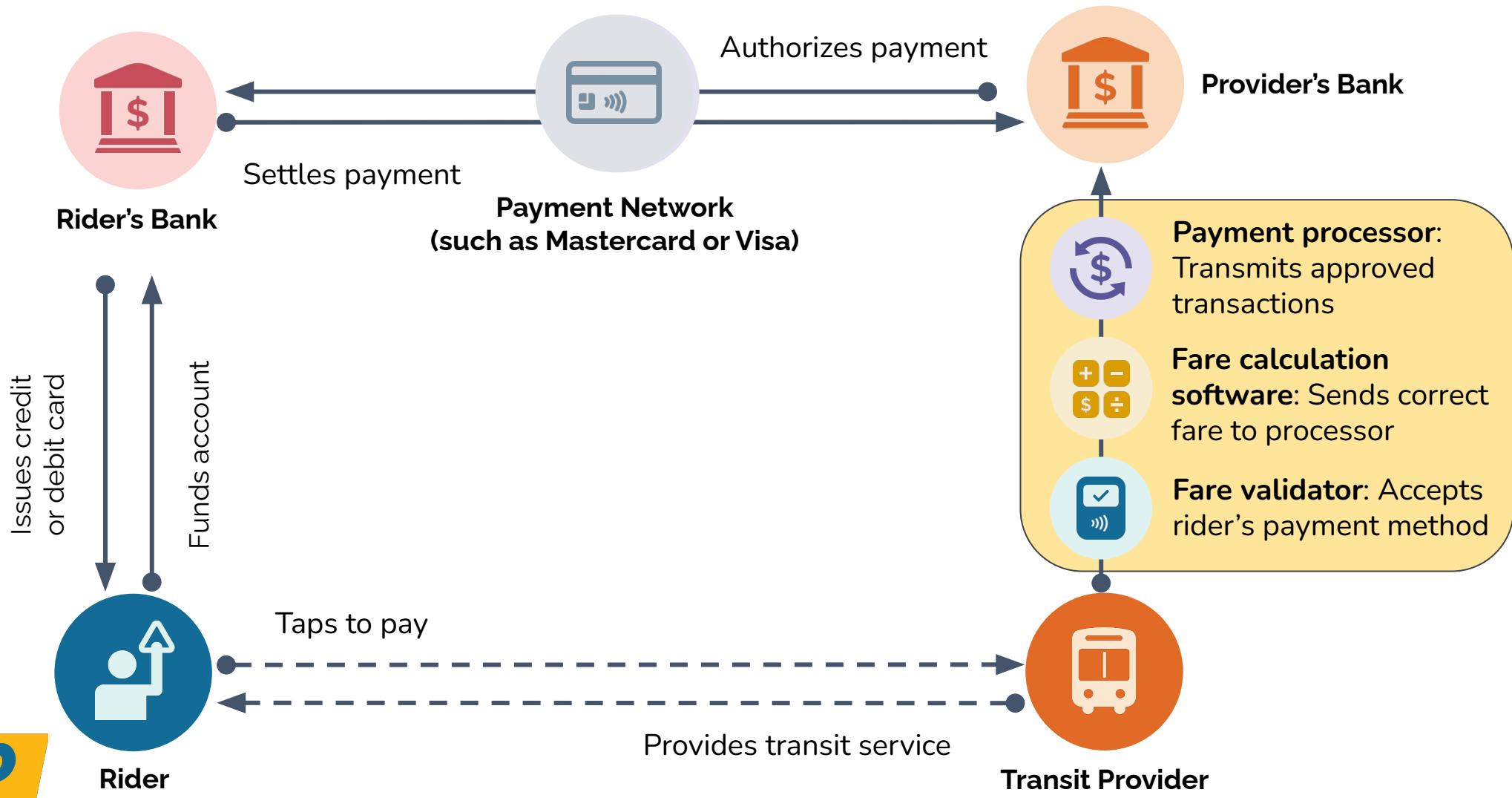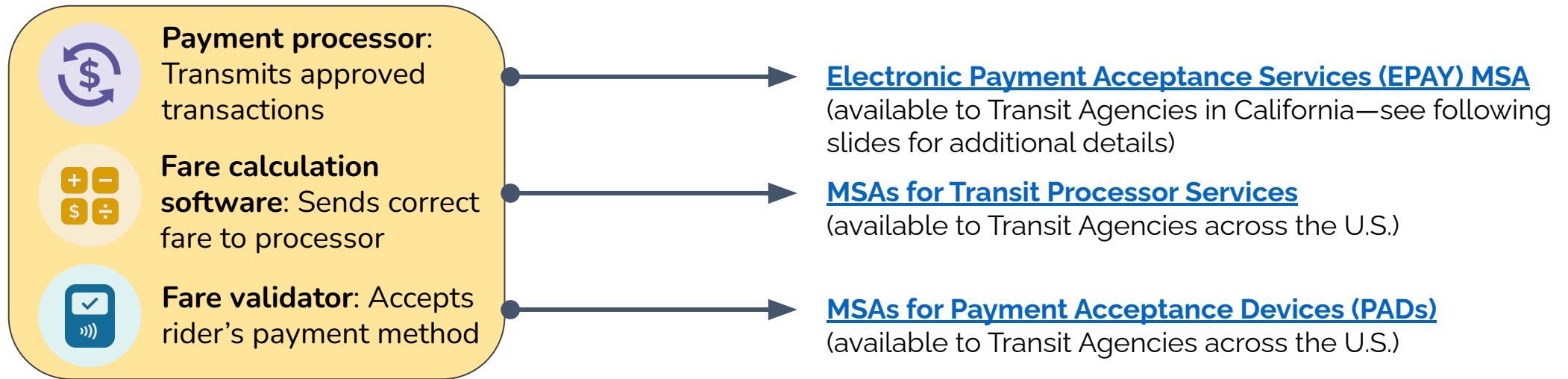
A typical contactless payment ecosystem

Rider's Bank — Settles payment — Payment Network (such as Mastercard or Visa) — Authorizes payment — Provider's Bank

Issues credit or debit card

Funds account

Authorizes

Taps to pay

Rider

Provides transit service

Transit Provider

Contactless fare payment for transit

Authorizes payment

Provider's Bank

Settles payment

Rider's Bank

Payment Network
(such as Mastercard or Visa)

Issues credit or debit card

Funds account

Payment processor: Transmits approved transactions

Fare calculation software: Sends correct fare to processor

Fare validator: Accepts rider's payment method

Taps to pay

Rider

Provides transit service

Transit Provider

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Master Service Agreements available for Transit Providers

Payment processor: Transmits approved transactions

Fare calculation software: Sends correct fare to processor

Fare validator: Accepts rider's payment method

Electronic Payment Acceptance Services (EPAY) MSA (available to Transit Agencies in California—see following slides for additional details)

MSAs for Transit Processor Services (available to Transit Agencies across the U.S.)

MSAs for Payment Acceptance Devices (PADs) (available to Transit Agencies across the U.S.)

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Additional Contactless Payment Components
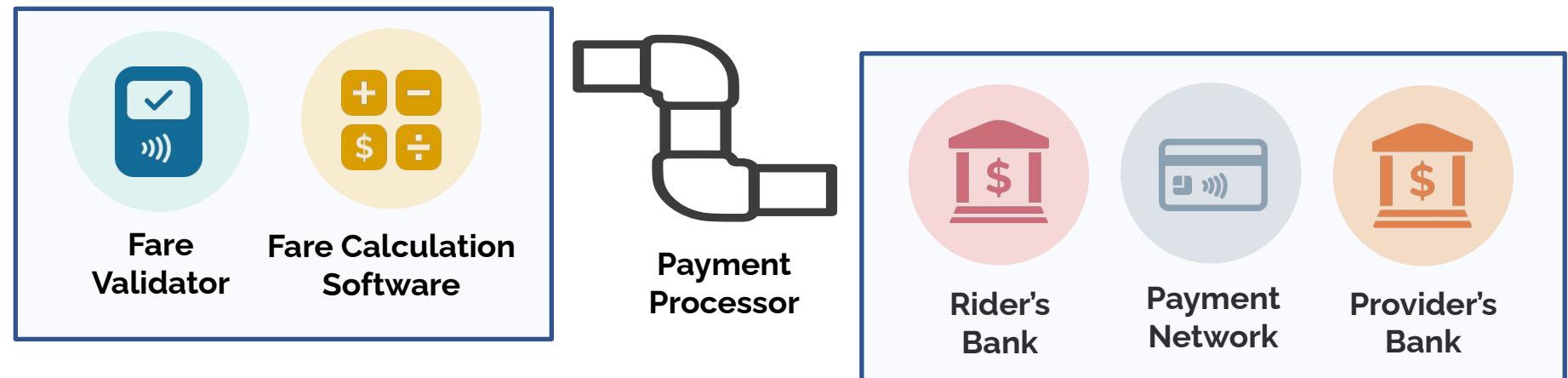
Accepting contactless payments makes a Transit Provider a merchant, and therefore responsible for paying a merchant service charge

See next slides for further explanation

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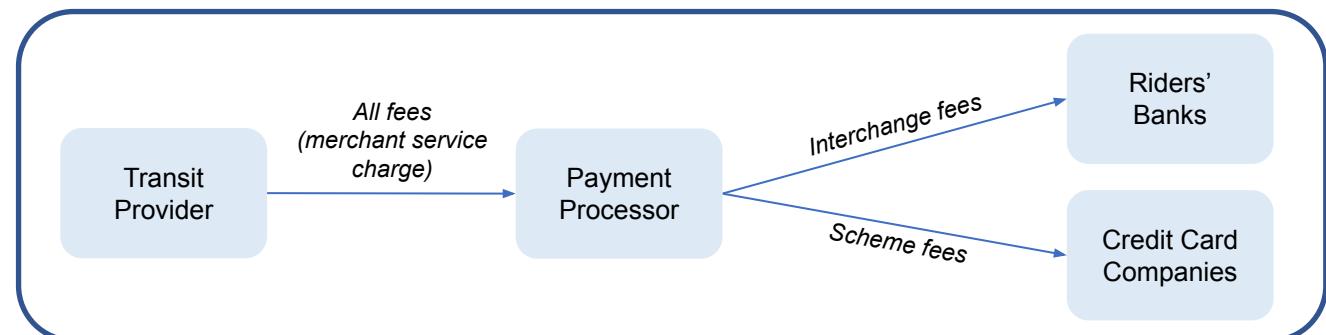
Electronic Payment Acceptance Services (EPAY)

- Electronic Payment Acceptance Services, provided by Payment Processors, are necessary for accepting traditional retail payments (for example paying with a bank card at a customer service center for a monthly pass) or for accepting contactless payments on transit.

- In the case of transit fare payments, the role of the Payment Processor is to collect the tap transaction data received by the fare calculation software and transmit the information securely to the financial institutions involved in the transaction and settle the revenues due to the Transit Provider.

- California has an EPAY MSA already available with Payment Processor Elavon.

Fare Validator   **Fare Calculation Software**

Payment Processor

Rider's Bank   **Payment Network**   **Provider's Bank**

Understanding the cost structure of EPAY MSAs

- The merchant service charge is made up of **three** separate components: **Payment processing fees, interchange fees, and scheme fees**, all of which are billed by and paid directly to the Payment Processor.

- However, only one component is retained by the Payment Processor (payment processing fees), while the other two are pass-through costs: Interchange fees are retained by the rider's bank (which issued the cardholder's credit/debit card), and scheme fees are retained by the payment network (i.e., "credit card companies" such as Visa and Mastercard). The Transit Provider does not transact with the card-issuing banks or with the credit card companies directly.

- Interchange fee rates and scheme fee rates are published publicly and will vary depending on the type of card used during the transaction and the transaction amount.

- Payment processing fee rates are set in the EPAY MSA, and rates decrease as the cumulative volume of transactions (across all merchants on the contract) increases: For Elavon, the current payment processing rate for transit transactions is $0.03 per transaction.

- Interchange fees typically account for the largest portion of the merchant service charge, with scheme fees and payment processing fees making up the rest of the costs.

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Transit Provider → All fees (merchant service charge) → Payment Processor → Interchange fees → Riders' Banks
Payment Processor → Scheme fees → Credit Card Companies

Accepting contactless payments makes a Transit Provider a merchant, and therefore responsible for protecting cardholders' data

See next slide for further explanation

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What does "protecting cardholders' data" mean?

- When a Transit Provider starts accepting bank cards, it becomes responsible for protecting the cardholders' data. The payment card industry (PCI) has codified its security requirements and frameworks. All banks, merchants, and other players that deal with cards and cardholder data must adhere to these PCI rules.

- Fortunately, the MSA vendors together are responsible for the majority of the requirements. However, some limited requirements will always remain with a Transit Provider as the merchant.

- Transit Providers are encouraged to discuss PCI compliance with their MSA Contractors and visit the PCI Security Standards Council website for more information.

PCI compliance guidelines

As a transit provider, I accept *fewer than* 6 million credit and debit card transactions in a year → *Contact your Payment Processor for assistance in maintaining compliance, which may include completing a self-assessment questionnaire.*

As a transit provider, I accept *more than* 6 million credit and debit card transactions in a year → *Engage a Qualified Security Assessor to perform the PCI assessments and obtain a Report On Compliance and Attestation of Compliance.*

Cal-ITP and the California Department of General Services (DGS) are not responsible for Transit Provider's adherence to PCI requirements

As transit continues to modernize, more devices are expected to leverage cellular data and connectivity.
See next slide for further explanation

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Understanding data needs

Your onboard technology (router, CAD-AVL, GTFS devices, fare payment validators etc.) can be connected through multiple SIMs (one per device) or a single SIM (one in a router).

Multiple SIMs

Each device could be powered by a SIM that connects to the network. These SIMs would have smaller data plans.

Single SIM

A single router could provide connectivity to multiple devices. The router's SIM would need a larger data plan.

1

Size: Choosing the right amount of data

How much data you use depends on how many devices are on each vehicle. Typical usage for GTFS software and two fare payment validators is 3 GB/month.

3 GB	• GTFS-RT • 2 fare payment validators
Unlimited	• GTFS-RT • 2 fare payment validators • Cameras • CAD/AVL

2

Coverage: Choosing the right carrier

Carriers provide different coverage depending on location. It is important to evaluate which best covers your service area. You can use FCC data to evaluate Verizon, T-Mobile, and AT&T coverage. You can review FirstNet coverage on their website.

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You can access data plans in the commercial marketplace or at discounted rates on CalNet or on NASPO. Interested in tapping these rates? Email hello@calitp.org to get started today! Our team is happy to answer questions and guide you through the process.